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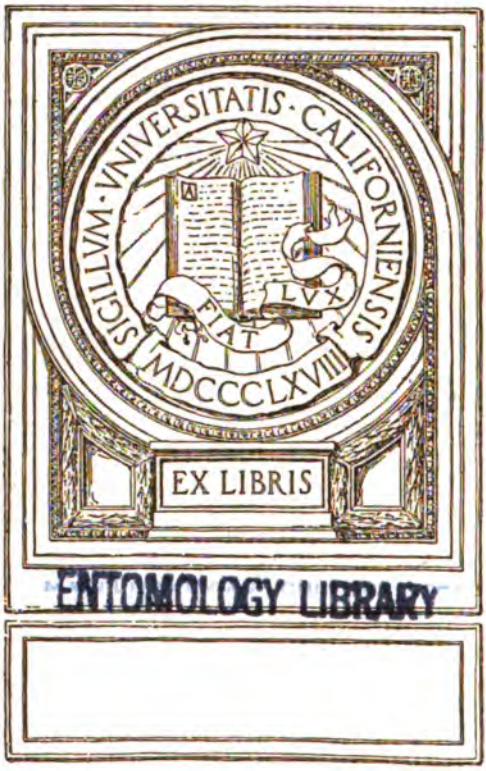

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VOL. XXIV. JAN. 1, 1896. NO. 1.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. ROOT CO.
MEDINA · OHIO ·

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments
E. R. ROOT, Editor of the Apicultural Departments.
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ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
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STRAY STRAWS FROM DR. C. C. MILLER.

HAPPY New Year!

THE *British Bee Journal* invites a discussion of house-apiaries.

A. B. J. doesn't stand for "A Big Joke," but for the only weekly bee-paper on the continent, *The American Bee Journal.*

A PRIMING COAT of paint, says E. B. Thomas, in *American Bee Journal*, is all wrong. Give hives first a heavy coat of *old* raw linseed oil.

RAILROAD authorities in France, says *Le Progres Apicole*, were petitioned to sow honey-plants on railroad embankments, and gave a favorable response.

IMPURITIES on the bottom of a cake of beeswax are troublesome to scrape off. Do the work while the cake is still hot, and it won't be half as hard.—*British Bee Journal.*

THAT TABLE on p. 951 is decidedly interesting, and its value would be increased if we could know whether the colony was above or below the average in numbers.

SOME YEARS AGO I saw at McHenry, Ill., an apiary that was wintered after the manner described by Mr. Coggshall, p. 945. If I remember correctly, the plan was quite successful.

CAN IT BE that intended marriage is the cause of Rambler's ceasing to ramble? Well, when he gets settled down with Eugenia let him tell us all about what they do with their bees.

IN REPAINTING hives, says E. B. Thomas, in the *American Bee Journal*, if the paint is not actually off the wood, one good coat of raw oil is quite as good as a coat of paint, and much cheaper.

THE MEMORY of the Rev. W. F. Clarke is at fault, I think, when he says, on p. 933, that he never met Mr. Langstroth except in 1871 and 1876. I think I distinctly remember seeing both of them at the Toronto convention in 1883.

FATHER LANGSTROTH wrote to have me try malted milk on bees, and I did so, but I couldn't make out that it produced any effect on the queen's laying. Possibly it might make a difference at a time when bees were gathering absolutely nothing.

HERE'S A QUOTATION from a Louisville paper that's a little out of the usual: "HONEY.—In pound sections, 12½@15c; wild honey, 5@6." [It's no worse than the constant use of "strained honey" in the market quotations of our big dailies. I suspect the commission houses are responsible for this.—ED.]

HON. GEO. E. HILTON says, in *Michigan Farmer:* "I not only believe there should be a bee-keepers' organization in every county, but in every township; and through the winter months these township organizations should meet monthly at least, and semi-monthly would be better." My! but wouldn't that make a lot of conventions! And a good many would have only one in attendance.

SWEET CLOVER. I challenged the statement, in Dadant's Langstroth, that cows would destroy sweet clover. They write that they turned cattle in a field having a patch of sweet clover, "and before the end of the season they had destroyed every single plant, and they have never allowed a stalk of it to grow on this land. Our experience is that cattle will eat swee clover in preference to any other grass."

REFERRING to that footnote on p. 945, it's bad enough to have my poor joke about my article being run as a serial throughout the new year being taken seriously; but it's still worse to be all torn up with uncertainty in trying to decide whether the editor himself is joking or in earnest. [You didn't label that as "A Big Joke," so I took it in earnest. Say, A. I. R. says your summing-up of the whole subject was the best treatment we have ever had in GLEANINGS on wintering.—ED.]

AN EVENT in London was the presentation to the Lady Mayoress of a representative collection of native honey, contributed by women bee-keepers, or the wives and daughters of bee-men in various parts of Great Britain. Object,

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to popularize the use of British honey "as an essential article of the household dietary." Might do that here, but who would be the Lady Mayoress? If she of New York were selected, there might be trouble with Mrs. Swift, of Chicago.

CHUCKLING the little bee said,
All tucked away snug in its bald,
"The people will all think I'm daid,
Never again to arise."
Just wait till old winter has flaid,
And skies are again warm and raid,
Out pops the little bee's haid,
And away to the meadow she flise.

THE PROBLEM of unfinished sections troubles a good many; but for the past two years I've had no unfinished sections whatever. I might take this occasion to remark, however, that the number of finished sections has been the same. [I suppose you mean this for another "Big Joke"—on you. Well, you can't feel so very badly, for hundreds of others are in the same boat. Come to think of it, no one of late has written on the subject of unfinished sections. Is it because they have had none?—ED.]

CANDY for winter feed. Here's a recipe given in *L'Abeille de l'Aube*. Dissolve 8 lbs. of sugar in a pint of water; bring to a boil, add 2 lbs of honey, and stir well; add 1½ lbs. rye flour; heat an instant, and mix; let cool a little, and pour on greased paper; then cut, and place in hives. [It's too much trouble to make this. Powdered sugar and honey kneaded into a stiff dough is much easier to make, and why not just as good? Rye flour? I'd rather have it left out for a winter food.—ED.]

"I HAVE OFTEN SEEN, in observatory hives, when there was plenty of room, and the queen did not have to hunt about for cells, a queen lay six eggs in a minute," says Charles Dadant, in *American Bee Journal*. He reasons from this that, if a queen lays only $\frac{1}{18}$ of the time she'll lay 3780 eggs every 24 hours, requiring ten Simplicity frames for eggs alone, and two or three more for honey and pollen, to say nothing about drone comb. [But queens very seldom lay 3000 eggs in 24 hours. They simply couldn't stand it; 1000 eggs in 24 hours during the busy season is a big average, I think.—ED.]

HASTY, commenting in *Review* on the notable article of Prof. Koons, GLEANINGS, p. 699, thinks that we should not put more than 4600 or 4700 bees to the pound until further corroboration. He strongly objects to 20,000 as the *average* number of bee-loads to the pound. He says, "The best result, a pound of honey to 10,154 loads, is well worthy of a place in our memories and record-books; but the other extreme, a pound of honey to 45,642 loads, is mere smoke in one's eyes." The last, because bees are coming in empty, from exercise, with water, with propolis, etc., that ought not to be counted.

STRAWS OR STOVEWOOD FROM DR. MILLER.

I often wondered why Dr. Miller kept throwing "Straws" at people. Is there no timber near you, doctor? Why don't you "pitch into them" with stovewood? You would not have to throw nearly as often. But, hold! I mean *your own* stovewood, mind you.

Is the doctor going crazy? On page 618, *A. B. J.*, he actually directs his correspondents who send him questions, *not to inclose stamps*, as he will answer through the bee-journals. Now, I hereby give notice that *I* am not so high-strung as that. Send on your stamps and questions to me, gentlemen, and I will answer through the bee-papers, and *keep* the stamps. I don't propose to repudiate any of Uncle Sam's paper.

Now, doctor, here is a first-class, fine large fat crow to pick: On page 638, *A. B. J.*, you knocked down one S. N. by striking him square between the eyes with a billet of wood—yes, sir, with a billet of wood, for asking, "Can empty kerosene-cans be used as a suitable package for honey?" You must have been out of reach of your "straw" pile, or a good deal too near some neighbor's woodshed, or you would not have hit him so hard. Did the agony of poor S. N. turn your heart to old oil-cans? Verily it looks much like it. I find, page 701, *A. B. J.*, you transfer from GLEANINGS the pernicious (and, I was going to say, nefarious) advice of S. S. Butler to use old oil-cans for extracted honey. You do this without a single word of condemnation, thus giving it your indorsement in the eyes of all your readers. You know—yes, you know—that the use of such oil-cans is calculated to sink lower and lower the price of all extracted honey. But perhaps it did not strike you in that light at the time. Now, doctor, toe the mark. A few words of explanation are now in order, and for that purpose I yield the floor. But, hold! One word more. This is the age of advancement and not retreat. Old oil-cans have been condemned, rejected, and abandoned.

While oil cans lived
They lived in clover;
But when they died
They died all over.

Don't try to resurrect them, doctor. They are far too dead for that.

When a fellow gets a new idea—gets it just by the tail, you know—GLEANINGS jumps up and "hollers" out, "That is an old tale—that

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was used and abandoned years ago;" and, to knock all the vanity and conceit out of the supposed inventor, it goes to work and *proves* it by records in its columns. Here's a case in point. But, Mr. Editor, don't hit the poor fellow too hard. *Leave some of him.*

A GREAT "DISCOVERY."

In the *American Bee-keeper*, page 275, Mr. John Clark says that, while experimenting, he "discovered" a new plan to get the wax out of old comb. Take an old lard or oil can and cut a hole in the side of it as large as the exhaust-pipe on your waterworks. Then fill a basket (suppose a bushe basket will do) with your old comb. Put a little water in the can. Now stuff in the basket of old comb, and cover with carpet. Now harness it to the waterworks by pushing the can on to the exhaust-pipe. In three short minutes the job is done. If this is *new*, and a splendid success, I want an exhaust-pipe. If you have them in stock, Mr. Editor, send me one immediately, already loaded, mind you. But I think that A. I. Root "knocked the stuffin' out of" old comb years ago, with steam. Is it not so?

HOW TO EDUCATE THE TAIL END OF A BEE.

For two hundred years entomologists have been deceiving us. Two hundred years! and during all that time I have never raised my voice in protest against them. But now it is time they were brought to bay. When I tell you that I intend—

> To be remembered, in my line,
> With my land's language,

you will see that they will have a foeman worthy of their steel, and one that's not to be fooled with. I draw the line at the worker-bee. I emphatically deny that he is a woman. I most indignantly repudiate the thought. Where are the sweet, tender, gentle, kind, and sympathetic traits of womankind? Echo answers, "Where?" No! he is a male man, or at most he is nothing more than a female man—the most vindictive, fierce, prodding, probing, punctuating, piercing, penetrating, "get there anyhow" kind of a beast that I ever knew. Yes, entomologists have led us astray on his anatomy. The wrong end of the bee is the right end. No, that is not it. The head end is the tail end. No, that is not it either. Now look here. What I mean is, that the entomologists have placed the brains of the bee in his head, whereas I contend that all his intellectual and business faculties lie in the tail end of him. This is the point where you must begin his education. His mind lies in the wrong end of him. The fore part of his body is an automatic machine which was built solely to rear a house and store away supplies. Now, Mr. McArthur, of Toronto, meets my views exactly. In *A. B. J.*, page 653, is an account of a new strain of bees originated by him. They have long and penetrating stings, but never use them. Mr. McArthur commenced at the head—that is, the tail—of the bee, to reform it. Now, here is where everybody else fooled themselves. They began at the head, whereas I have clearly shown that his whole business force lies in the other end of him. All experiments in reform heretofore have failed—ignominiously failed—because they began at the wrong end. But Mr. McArthur struck a bonanza when he took the same view of it that I do. He began the reformation right, and he succeeded. You can kick his hive over, and then kick it back again, and they make no resistance. You can grab them up by the handful, throw them into the air, and kick them and cuff them as they come down again. Will they fight? No, sir. They will sneak away, back into the hive, and begin to cry. Mr. McArthur doesn't intend to begin selling queens from this strain of bees till their stings rust off for want of exercise, and then he will have a race of stingless bees. Mr. McArthur is still pushing his reformation up the spinal cord. But I think he has gone far enough. If I were in his place I would not try to reform the left end of him; if he does, he may paralyze the honey-gathering machinery. But, won't there be a picnic when the boys of Toronto know for a certainty that Mr. McArthur's bees won't sting? Won't the streets of Toronto flow with honey when the boys know that the bees have reformed? O sweet-scented streets of Toronto! how I should love to be there to enjoy the "feast of reason and the flow of *sole!*" Then will echo from corner to corner, "Run, boys, run! run for McArthur's apiary! all you have to do is to kick over a hive, paw the bees off the combs, and send them home crying to their mother! Run, boys, run! Hurrah!" Oh, the glorious, happy day when the boys will get all the honey, and the bee-keeper—nothing!

Now I just want to offer a little criticism on the above "circus" of Mr. McArthur. He began right—at the right end—but he went too far. Some of the "reform" must have touched the spinal marrow at the root of the sting, and thus paralyzed it. The reform was too strong, and should have been diluted. I am now going into the "reform" business myself; but you will see a different result. I will begin on their moral nature (which is rather attenuated at present) and teach them to distinguish between friend and foe. I will instill into their innocent minds a love for the family of the bee-keeper. The course of study will be so thorough and so effectual that the children can play "hide and go seek" in the apiary while the little tots are sitting down playing with the bees in front of the hives. Scouts to hunt a home will be abolished, and instead a deputation will be sent to the house to proclaim the glad tidings to the family that a swarm is soon to come out.

But, on the contrary, I will cultivate to the

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highest their natural disposition to attack strangers—to regard as a mortal foe every one who does not belong to the family; to whet up their swords every evening, and "welcome the invader, with bloody hands, to a hospitable grave."

CALIFORNIA ECHOES.

By Rambler.

W. W. Bliss, of Duarte, Cal., a bee-keeper and fruit-grower, is honored with several medals at the Atlanta fair.

Geo. W. Brodbeck, of Los Angeles, also secures a medal for an exhibit of California comb honey.

Not much encouragement to embark in the bee-business here, honey being only 3 cts. per lb., best extracted; comb honey, 8 to 9.

I wish to thank an unknown friend in Australia for sending me a Christmas study in kangaroos. The bachelor kangaroo would be my particular favorite.

We have a law in this State against the adulteration of honey. The penalty is a fine of $50 or upward. Some of our bee-keepers think that an imprisonment clause should be added to make it more effective.

Just see what Dr. Miller says about pulling out the bottom of a well. Doctor, if you will take a run out here, you will learn more in a week about wells and water and irrigation than you have in all your life before. There are neighbors of mine here in Bloomington who pull out the bottoms of their wells once every week.

Mr. Bonart, of this county, has a large apiary, and a large vineyard on the same ranch, and the vineyard is not injured by the bees. Mr. B. says that one year, when the grape-vines were in bloom, there was a continuation of northers that kept the bees from working upon the whole vineyard. Only that portion nearest the apiary was worked thoroughly; and when grapes ripened, this portion of the vineyard had the most grapes. Still there are people who will complain when a bee looks at a grape.

Some of our California bee-men have a habit of finding fault with their bee-paper when they see any thing in it about wintering bees. But just think of it, friends, in a paper that is published for the whole continent. We get all sides of bee-keeping, and it keeps the reader posted, making him an all-round bee-keeper. A local paper is liable to make a sort of one-sided bee-man, and Californians can not afford to fall into such a rut. Let us take the wintering symposiums good-naturedly, especially when there are 16 extra pages added.

SUNRISE APIARY.

ANOTHER BEE KEEPERS' UNION TO BE ORGANIZED WITH A LIMITED MEMBERSHIP; DRY-WEATHER VINE HONEY SUPERIOR TO THE FAR-FAMED ALFALFA.

By John C. Wallenmeyer.

The exhibit was arranged and decorated by my assistant, Miss Jeanette Lois Millard, and was awarded 1st prize and diploma for being the most interesting and most attractive exhibit of 4'6 at the Tri-State Fair. I secured 1st premium on most attractive display of comb and extracted honey, bees and queens, and apiarian implements. We made $40 clear by selling honey lemonade, while other lemonade-sellers never made expenses. You might say, if you like, that Miss Millard and myself are going to organize a bee-keepers' union (limited membership of two). We might consolidate with the North American. Miss Millard is just 18, and loves to take care of bees, rearing queens being her hobby. I have leased a 70-acre farm for 5 years, and will have a honey-farm—that is, plant such crops as will produce honey, and pay besides for other things. I will express you a sample of Finch foundation, and a jar of best honey on earth, and seed-pods of the source (dry-weather vine or weed).

THE DRY-WEATHER VINE, OR EVANSVILLE HONEY-PLANT.

The finest honey in the world, considering body, flavor, and color, is produced by what we call the dry-weather vine. It has been pronounced such by experts, who are bee-keepers and honey-dealers, and who have tasted all the principal honeys produced. Alfalfa honey, which is pronounced to be so fine, finds no sale alongside of our so-called "Evansville honey-plant." There is a sickening odor not unlike perfume, attached to alfalfa. I have sold in the Evansville market, alfalfa, alsike, linden (or basswood), sage, goldenrod, black mangrove, saw and cabbage palmetto, orange-blossom, catnip, buckwheat, and white-clover honey, yet none of the above-named can even be classed with the "Evansville honey-plant." Test the sample mailed you and I know you will admit all I say of it. It is water-white in color, very thick and heavy in body, weighing 12 to 13 lbs. to the gallon. The flavor is its winning point—very mild and delicious. One never tires of it as you would of basswood. I have some standing in open jars now two years, extracted, and it has not begun to candy yet. I received first premium last year at New Harmony fair, over 13 competitors, with this fine honey. I believe that this will prove to be the most valuable honey-plant ever known to bee-keepers, and I can back up my belief with good reasons. 1. It begins to yield nectar at a time when there is nothing else, usually setting in here July 15. 2. Its length of bloom, as it continues unabated until cut down by the

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BEES
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THIS AFTERNOON
Nell Ford

frost. 3. It flourishes in a drouth. The hotter and dryer the weather, the more abundant the bloom and yield of nectar. One can actually see the tiny drops of nectar glistening in the morning sunlight, at the base of the petals. 4. Its immense yield is its winning feature. It grows on low damp marshy places best, but thrives almost anywhere it gets a start. Once it gets started it is indeed hard to eradicate. We did not get much of a flow from it this year on account of such a rainy season this summer and fall, corn growing 15 to 16 feet high all over the river bottoms. The vine has clusters of flowers about every 6 inches, of about 10 to 20 blossoms, the blossoms being of a light blue color, and very beautiful and fragrant, the aroma filling the atmosphere for miles around. It has seed-pods about an inch in diameter, and about 3 inches long, resembling a pickle. Each seed is furnished with a silk-like tassel; and when the pods burst, the winds carry the seed in all directions. I have leased a 70-acre farm right in the heart of this big honey-producing belt. In this vicinity, every fall, bee-trees are cut by the dozens, and honey gathered by the tubful. Mr. J. J. Cosby, a prominent bee-keeper, stated that, when he examined my locality in the midst of the honey season, were a thousand colonies of bees placed near this locality it would not be overstocked, and he is a practical bee-keeper whose opinion is held very highly by all who happen to know him. So much faith has he in the honey flora of this locality that he has purchased a beautiful piece of ground within half a mile of me. All the above facts are vouched for by such prominent bee-keepers as J. J. Cosby, M. Hessmer, B. Witherspoon, and Mr. Wheeler.

Evansville, Ind., Nov. 23.

[I have, as stated, before me a fine sample of the dry-weather-vine honey. While it is beautiful in body and color, its flavor being very fine indeed, I do not think it quite up to some alfalfas we have here. Perhaps in time I should like the other better.

As to that bee-keepers' union, I am sure our readers will unite with me in wishing it all manner of success. We need a good many more such unions, especially in California. Mr. W. is the author of that song, Queen Jeanette. There, you know who she is now.—ED.]

EUROPEAN AND OTHER MATTERS.

THE BEES OF THE CAUCASUS, ETC.

By Charles Norman.

In the European bee-papers now and then mention is made of the bees of the Caucasus; but I never could get hold of a description of them. Mr. Edward Bertrand satisfies my curiosity at last, for he describes them in the November number of his *Revue Internationale*. There are two races of them, a gray one and a yellow one. The gray ones occupy the whole northern and mountainous part of the Caucasus, and extend some south of Tiflis; while the yellow ones inhabit the province of Erivan and Russian Armenia.

In the region of Elizabethpol the two races are mixed. Their color varies in intensity according to the different regions. The southern variety is of a brighter (the French expression is "plus franc") and clearer yellow than the Italians are, while the gray bees are rather clearer than our common bees, and approach in aspect to the Carniolans a little. Both of the varieties are exceedingly gentle, and can be managed without the use of any smoke. Mr. Bertrand received one of the gray queens from "Mr. M. N. Schawroff, directeur de la Station Sericole et Apicole" at Tiflis. I give you the gentleman's address in French, so that if you or some of your readers would like to communicate with him, a letter with the French address will certainly reach him.

CROSSING APIS DORSATA WITH COMMON BEES.

Dr. Miller reports in one of his Stray Straws, Nov. 15, that Mr. Vogel, a German bee-keeper, "scouts the idea of crossing *Apis dorsata* with the common bee; and in a footnote you remark, "Who said they could be?" Well, if you lay stress on the word "could," you are fully right; for there is no bee-keeper who says that they *can* be; but there are some—and none of the minor ones—who most assuredly say that they *may* be. For instance, your friend Gravenhorst, who devotes nearly three columns of the November number of his *Illustrierte Bienenzeitung* to the subject. He says that Mr. Dathe, at Eystrup, Germany, and Mr. Frank Benton, at Washington, are the only real bee-masters that have observed and studied the said bee; and both of them, he continues, are of opinion that crossing it with *Apis mellifica* is possible. In GLEANINGS of Dec. 1, E. R. R. remarks: "Frank Benton says it is *impossible*." Explain, please. When Mr. Benton returned from the East Indies he sent Mr. Gravenhorst about a dozen samples of *Apis dorsata*, some of them being workers, some drones. The only difference from our bees consisted in size and color; they were bees and nothing else; had not the least resemblance to the wasp and the like. The workers are as large as a well-grown afterswarm virgin queen of ours; and as to color, the only obvious difference between them and a genuine Egyptian or a beautiful Italian bee is that their wings show an azure tint or hue. The drones, not only in shape but in size, are like our largest drones. *Apis dorsata* produces wax in the same way our bees do, and their honey is equally good. That little difference in color is no proof against the possibility of crossing; for can not the black and yellow bees be cross-

[I can not at this moment refer to the place; but I *think* Mr. Benton said somewhere that the idea was absurd. Will Mr. Benton please enlighten us? Mr. Gravenhorst is a bee-keeper whose opinions I value, therefore I should like to be set right.—ED.]

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ed? And as to size, can not a small pony be crossed with the largest race of horses? or our common hen with a China rooster? To be sure, *Apis dorsata* does not build its comb as our bees do: It makes only one large wheel-shaped comb which it attaches to the branch of a tree, or below some projecting rock. It also leaves its home and migrates when nectar is missing; but all this hardly excludes the possibility of a *crossing*. Therefore Mr. Gravenhorst thinks that the thing should be tried, as the result might be of great practical as well as scientific importance.

DOES THE FOOD AFFECT THE TEMPER OF BEES?

It is a mooted question among bee-keepers, as to whether the food which is given to the larvæ of a colony determines their character; or, in other words, whether the larvæ from a gentle queen, when placed in and fed by a vicious colony, will become less gentle, and *vice versa*. Mr. Bertrand formerly believed in this kind of so-called "heredity," but he takes it all back now, after experimenting in this line with his gray Caucasian queen. He selected a very bad and vindictive colony of his, killed their queen, and replaced her by the Caucasian queen on the 24th of August, 1894. She laid splendidly, and her colony was the strongest and most advanced of all in April, 1895. And her bees? well, they were remarkably gentle; and, although Mr. Bertrand never used any smoke or veil when he worked with them, yet he never received a solitary sting from them. The experiment, of course, is only a single instance, and "one swallow does not make a summer;" yet Mr. Bertrand's prior opinion is thoroughly shaken by it. The force of the argument, I might add, is increased by the fact that these foreign races, when transferred to other countries, often *lose* their gentleness. The Egyptian bee, for instance, hardly ever uses its sting "at home," while, when taken to Europe, it becomes very bad (*Revue*, 1894, page 211).

NOMENCLATURE OF QUEEN-CELLS

The other day, when rambling through some back numbers of GLEANINGS my eye struck, and I reread, quite a thorough article from Dr. Miller's pen on "Queen-cells of two Kinds;" viz., such as are constructed *before* the eggs are laid in them, and such as are constructed into queen-cells *after* the eggs are laid. The former are built as queen-cells by the bees from the start, and called *pre-constructed* cells by the doctor. The latter are worker cells which are changed, widened, transformed into queen-cells, and called *post constructed* cells by him. It is important for the bee-keeper to know and notice the difference; and, in this particular, you, in a foot-note of some length, fully agree with the doctor; but you object to the terms "pre-constructed" and post-constructed," as you are "rather opposed to the use of Latin prefixes in the coinage of new words that could not be understood by the general reading public." Now, leaving out the questionableness or non-questionableness of this argument of yours, there might be some other reason or reasons that could be preferred against said terms. One of them seems to be their length. Americans like short words and expressions, and those two terms are decidedly too long, provided shorter ones can be given in their stead. At first I thought whether it might not do to say "pre-cells", and post-cells." But then your objecting to the use of Latin prefixes! When thinking the thing over, all at once two words rose before my mind—the words "forenoon" and "afternoon," and then came the words "forethought," "afterthought;" "forepart," "afterpart," etc. So I ask you, as well as the doctor, Shall we not name said cells "forecells" and "aftercells"?

[This would be better.—ED.]

AN "INFALLIBLE" METHOD OF INTRODUCING QUEENS.

Do you want to learn an *infallible* method of introducing queens? Well, according to the November issue of the *Leipziger Bienenzeitung*, Dr. Metelli, that well-known Italian bee-master, pretends to know and practice one. First he prepares the colony which is to receive the queen. If they have neither queen nor brood, the bees are contracted in the brood-nest on as few combs as possible, the upper story is emptied of its honey frames, and the two stories are separated by a bee-tight wire net, such as can be removed without difficulty. If they have any brood (even *unripe* queen-cells) it is not removed, but they are likewise contracted in the brood-nest. If they have a queen, the same is taken away, and care had lest another laying or virgin queen be present; then contraction as above takes place. Second: Now two or three brood-combs, with the queen and all the adhering bees—the more the better—are removed from another colony and hung in the upper story, with the addition of two empty combs (containing, if needs be, a little pollen and honey), one on either side of them. After 48 hours, the wire net is removed. After 48 hours more, the frames from the upper story are hung down in the brood-nest, the queen having descended quite often ere this. The upper brood-frames, without the queen, of course, may afterward be returned to their former hive. If the colony is a drone-laying one, more care is required. *All the combs* must be removed so that no eggs can be laid, and the colony be put in "swarming condition." Then when the queen, etc., are put in the upper story, the lower colony clings to the wire net in the shape of a swarm. After 48 hours the net is removed, and, after two days more, the frames are taken down to the brood-room. In all of these cases the queen is never hindered in lay-

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ng. Has she been sent from abroad, a nucleus has to be formed, and, after it has accepted the queen, management is the same as above. Dr. Metelli, of course, knows the other modes of introduction too, but this one, you understand, is the *infallible* one.

[We have been taught, and rightly, that nothing will work infallibly with bees; that they do nothing invariably under all circumstances. The plan, however, looks as if it might work *almost* infallibly.—ED.]

FORMIC ACID FOR CURING FOUL BROOD.

Mr. G. Lichtenthæler, of Herdorf (*Leipziger Bienenzeitung*), is not afraid of foul brood at all. What he has to say is this: Foul brood is caused by the bacillus alvei (detected by Pastor Schœnfeld). It can be produced by direct infection; but it can also be produced without direct infection. Give a colony more brood than they can cover; and if they don't empty all the cells containing dead larvæ (after 48 hours) you will, after about 24 days, notice that well-known brown mass. A single foul-brood herd produces so many billions of bacilli alvei that the air of a whole continent could be filled with them. It is the air which spreads the spores of the bacillus. They exist anywhere in the air; they exist in any hive, perhaps even in the intestines of any bee-larva, just like other bacilli. But what withholds infection is formic acid, that most excellent antiseptic. As long as a colony is in a normal condition, it is safe (except from *direct* contact with the germs); but when in an anomalous condition (uncovered brood, food not being honey, but some substitute that contains no formic acid and the like), the case is different. To cure foul brood, Mr. L. applies none of the usual remedies. When 30 to 50 per cent of the brood is foul, all the brood is cut out and burned. Then the potency of the formic acid is increased by contracting the colony to a third or half of its former space, and not leaving any opening except the entrance. After this, abundant well-capped honey-stores are given, and the colony left entirely alone for one or two months. Even if the foul brood is not removed, a cure will be effected; but then it takes three months.

[Foul brood can not start of itself without germs. These germs may *perhaps* be plentiful enough in the air to make the presence of even dead brood a source of danger. Still we have had numerous cases of dead brood as a result of chilling in early spring, and no infection was ever started.—ED.]

PREVENTING THE UNITING OF SWARMS.

Mr. Maurice Bellott mentions in the *Revue* a way of preventing the uniting of swarms, which oftentimes may be used. He says: "One day an idea struck me; a swarm was in the air, another was about to issue. I quickly close the entrance with a handful of grass, and carry the hive about 200 meters away. I open the entrance, the swarm rushes out, and locate without mixing with the other. Likewise on another day I managed several colonies with the same result."

CALIFORNIA HONEY EXCHANGE.

ITS ADVANTAGES TO HONEY-PRODUCERS; AN OUTLINE OF THE PLAN, AND ITS METHOD OF OPERATION; THE CALIFORNIA CITRUS FRUIT EXCHANGE, AND WHAT IT HAS DONE FOR THE FRUIT INTEREST OF THE STATE; LOW PRICES OF CALIFORNIA HONEY; THE CAUSE AND REMEDY.

By Prof. A. J. Cook.

It is a principle of political economy that prices are regulated by the law of supply and demand. If the supply of any commodity is great, more than is required to meet the usual demand, then prices fall; but if there is a shortage in the supply, or if for any reason there is an increase in the demand, then prices are advanced. This seems right and reasonable, and speaks no hardship. If the producer has an overwhelming abundance, he can face low prices with equanimity; and if his product is scarce, and the price is correspondingly great, he still sees justice in the relation, thinks not to murmur, and is at peace. In truth, he prefers, if he considers only his own selfish interests, to produce, say, 1000 bushels of potatoes, and sell them at one dollar per bushel, than to raise ten thousand bushels and market the same at ten cents per bushel.

In the honey market, this law does not seem to control. Last year there was in California almost no crop of honey, and yet the price was about the same as at present, although many bee-keepers the present season have produced upward of thirty tons of the best honey. It is evident, then, that the markets are manipulated, and that the legitimate laws of trade do not control in fixing the price of honey. The large dealers either keep up the supply of so-called honey irrespective of the production of the genuine article, or else, made strong *through organization*, they have power, which they seem not slow to use, to fix prices to suit their own sordid desires for gain; and thus the producer becomes the victim of what is virtually a great trust, made powerful through the fact of organization. That the latter explanation cuts the larger figure is shown in the fact that the consumer is not benefited by the low price offered by the wholesale dealer, or at least but slightly benefited, for in the retail markets the price suffers no such extreme diminution. Thus the price of honey is manipulated arbitrarily, not controlled by the laws of trade, and this to the serious hurt of both producer and consumer.

We can not wonder, then, that producers are becoming indignant at such palpable injustice, and are resolved "to fight fire with fire." They propose to adopt the motto, *Similia similibus curantur*. All other crafts organize to work as a unit, why not we? say they. They have been united, and able to take advantage of our isolation and scattered energies. Why not we

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combine, who produce what the world needs, and will die without, and so compel justice in trade? The others all agree that we do not get our fair share of the world's goods. But as the carver at the table reserves the largest, fattest slice for his own plate, so they, still in the face of acknowledged injustice, fix the price at the lowest possible figure, simply because they can; or, in railroad parlance, "charge all that the traffic will bear."

The orange-growers of Southern California faced this problem. They organized as the Citrus Fruit Exchange only two years ago; yet only last year they controlled the market and shipment of over one-half of the eight thousand carloads of oranges shipped from Southern California. They have largely reduced the expense of packing and shipping, have been able to grade the fruit more perfectly; and as "nothing succeeds like success," they are more and more winning the respect of all classes, and especially the growers; and, unless they commit some most unfortunate blunder, will soon draw all producers into the Exchange. Thus organized they can not only pack and ship at the lowest expense, but they will wield a power that will compel reasonable freight rates, and, best of all, they will restore to the throne, in trade, the great and equitable law of supply and demand. The markets will not longer be manipulated, and the charge be regulated by the endurance of the traffic, but regulated by the just laws of trade, to the benefit of both producer and consumer. The avarice of the tradesman shall no longer fix the prices, but the producer shall have a word as to what price his products shall command in the market. Already the fruit interests are brightening; already the orange-grower is cheered by the hope of living prices; already the whole fraternity is seeing a brighter, better future.

The plan of the Citrus Association or Exchange is something like the following: A central office, at Los Angeles, controlled by general officers, elected by all the stockholders, according to amount of stock, looks after all the general business. This management is in daily communication with all the markets supplied, in the East: arrange with responsible business firms that do business in all available markets, and receive all orders for fruits. As the markets are worked up before time of shipment, the orders come in liberally, and are supplied in proportion to amount of fruit, by the local branches of the Exchange. Each locality has its branch, and, upon receiving an order from the general manager, orders from each individual, as the quantity and ripeness of the fruit suggests. The vantage ground is just here; markets are worked up, and new ones established before the fruit season opens; and that by persons directly interested in the marketing of the fruit at good prices. Shipping is done by a single body, and so no market is glutted. Cars of fruit go direct to all markets, and not to some one large market like Chicago, to be reshipped. The growers can pack at very much less expense, and have voice as to price. They are not at the mercy of myriads of buyers, often commission men, without means or responsibility. The freight rates are also more sure to be justly regulated by an influential association than they could be by mere individual effort. The thousands of dollars of rebate on freight will also go to the producers and not to the commission men, as was the case under the old *regime*. The grading is done by interested experts, and so is better performed, and constantly builds up rather than interferes with the market. In fact, the whole scheme is a business arrangement, and is rapidly growing in favor, as it must certainly do, commanding the respect of the producer and also of the general business public. Even bankers, and other men of business sense, speak of the Exchange as the salvation of the fruit interests of California, and this at two years of age. If the mere plantlet gains such respect, what will be the result when the plant is mature and has fully fruited?

Bee-keepers are as great sufferers as were the fruit-men, and have precisely the same grievance. Very unjust discrimination is made by the railroad against honey. The best extracted honey, which should never sell below six cents per pound, commands now only three cents in the market; and the bee-keeper whose circumstances compel immediate sale can get no more. He has no option, and is wholly at the mercy of the buyer; and often, very often, fails of all profit; and frequently, trusting his goods to unprincipled commission men, loses every thing. The bee-keepers have resolved to organize a Honey Exchange similar to the Fruit Exchange. A committee of able, wide-awake men, is appointed to put the scheme on foot. The bee-keepers everywhere are promising to become patrons, and show their faith, by the promise to be responsible for all necessary expenditure.

The probable scheme will be to organize an association much like the Citrus Fruit Exchange. A general manager will devote his entire energies to the development of the market, and the honey of California will nearly or quite all be marketed through the central Exchange, and sold directly to large reliable dealers in the East, and at a living price insisted on by the Exchange. If the bee-keepers hold together they can have much to say in regard to fixing prices; and may so influence freight rates that the unjust and unreasonable charges shall be greatly reduced. It is proposed to have one or more local organizations in each county, to determine the magnitude of the drop, and to attend to the grading and ship-

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ment, according to advices received from the central organization.

It is believed that this scheme is entirely practical, and already there is a spirit of hopefulness among bee-keepers that could not exist when all the profits went to the middlemen, or, as is too often the case, more than the profits went to unreliable and dishonest commission men.

The fact that all or nearly all bee keepers are intelligent, reading men, and are united, through the influence of the excellent bee-papers, makes it possible that the Honey Exchange will more readily secure full co-operation among bee-men than has the Fruit Exchange among orange-growers.

Every honey-producer in California should at once write to Secretary J. H. Martin, Bloomington, San Bernardino County, California, giving him the number of colonies of bees in his apiary, the amount of his present crop, and also the names and addresses of all the bee-keepers in the region. This will greatly hasten the work of the committee in putting the Exchange into complete working order.

Claremont, Cal., Dec. 12.

[This is a very important subject. As Prof. Cook truly says, "Nothing succeeds like success." If the Citrus Fruit Exchange had not left such a splendid record of its work during the two years of its existence, we might look with some hesitancy on the efforts of bee-keepers to protect themselves in a similar way. I hope the foregoing article will be read carefully by every honey-producer, not only in California, but in every State in the Union; and I trust, too, we may have the subject more fully discussed by others who may be interested. GLEANINGS will be very glad to assist in the enterprise in any way in its power.—ED.]

SIX YEARS' EXPERIENCE IN SELLING HONEY FROM A COMMISSION HOUSE.

THE IMPORTANCE OF HAVING A NEAT AND ATTRACTIVE PACKAGE.

By S. T. Fish.

Mr. Root:—If you will give us the space in your valuable paper we will speak candidly our opinion, formed after having a honey department for six years. We have several departments in our business, and honey is by no means classed as a large department. Ever since we first went into the honey-business we have had a honey-room which in winter we keep heated with a coal-stove. Since the inception of this department we have endeavored to perfect it for the handling successfully of all our receipts. Aside from the extreme West there has been no honey crop this year.

The last of August we bought a car of comb honey produced in California, from a middleman who makes it a business to pick up small lots and ship a car. This honey was sold to us to be in the regulation shipping-crate, all fancy white, made with separators. We paid the draft; and when we looked at the honey we found some of it was in cases that had ½-inch boards on each side of the case to fill it out, and ½-inch boards on the top of the sections, as the case was too deep for that size of section. Some of the sections were woven so that we could not separate them, and certainly this honey was not made with separators.

Right here we want to say that it is to the interest of every bee-keeper to buy a perfect case for his honey—to make separate grades, using a letter for each grade, and not try to deceive any one when they ship. GLEANINGS should continually harp on the topic of "perfect cases." We strongly advise using such cases as are made by the A. I. Root Company, or any other firm capable of making them as good.

Oct. 26th we bought two cars of Utah comb honey, and paid cash, about $5000 for the two cars. No other firm in this city dared to risk a venture of this kind, considering that Utah comb honey candies very easily in cold weather. We hope that at any future time when Utah puts up comb honey they will leave out sections that are not capped, as, when we show a customer a case, and any of the sections are not capped, it causes trouble, and it is just as convenient for the bee-keeper to keep that honey, and make a separate grade of it. We also notice in these carloads, one bee-keeper broke the comb with his finger. No doubt it occurred in scraping the sections. We want the bee-men to mark the gross, tare, and net on each case of honey. They can ascertain the tare of the cases by weighing several of them separately.

One California bee-keeper sent a car of honey to this market, and wanted us to pay his draft (which with the freight made over $2000), without being permitted to inspect the car. No firm in the United States would do this. We had no objection to paying the draft, if we could see what the honey looked like; but his instructions to the railroad were, not to allow inspection; we therefore had our suspicions as to quality.

The word "commission merchant" has been so scandalized by irresponsible firms that it is no wonder that bee-men are cautious in their shipments. Recently we observed a commission firm well spoken of by a bee-paper, and we doubt whether this firm has any rating in the mercantile agencies.

Let us sum up this article by saying that it is to the interest of bee-keepers, in putting up comb honey for market, to have a neat package; to grade their honey carefully; for if it is not graded, the poor honey is liable to sell the good honey; and whenever good honey sells poor honey, you can depend upon trouble or a deduction in price.

We have been successful in having a certain

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party in Chicago put up extracted honey in glass bottles. He is selling to the grocery trade, and we can now say that it is possible for the *consumer* to procure pure honey in small packages. This is something that we could not say a year ago.

Adulteration is the enemy of extracted honey; poor package and poor grading is the enemy of comb honey. Overcome these facts, and a much better market will be found for the disposition of the product of the apiary.

Chicago, Ill., Nov. 5.

[Comb-honey producers make a serious mistake in shipping their honey to market in cheap or poorly made or home-made cases. Another serious mistake, and more common than many would suppose, is the lack of grading. As the years go by, we trade more and more supplies for extracted and comb honey; and many of you would be surprised to see the slipshod way in which honey is sometimes put up. We very often buy such honey at a low figure, and can afford to recrate and regrade the entire lot, and then make a fairly good profit besides. Now, what is the use of the honey-producer losing this margin of 3 or 4 cts. a pound when he might just as well save it by spending a little time himself rainy days, when he could do nothing else? If the producer is not going to take time to grade his honey, and properly crate it, the commission man will have to do it, and absorb the profit, because the trade don't want and won't have poorly graded honey except at quite a reduction in price.

Yes, indeed bee-journals ought to "harp on this subject" a good deal. When the proper season comes for its consideration, GLEANINGS proposes to have a symposium on the subject of shipping and grading honey, made up of articles from honey-producers and commission men.—ED.]

NOTES AND COMMENTS.

By Mrs. L. C. Axtell.

Another year has passed, and our bees, 120 colonies, have gathered only about 400 lbs. of surplus, but they have filled up heavily for winter, so we had no feeding to do, and the bees look healthy, as if they might winter well.

BEES DON'T PAY.

This is the remark I often hear; but as we do not have to put much time upon them poor years, and I do the most of that work myself, it gives me a good excuse for being out of doors, which is a great benefit to my health, and a great deal of enjoyment besides.

SPRING FEEDING.

Had we not fed heavily last spring I should not feel that 400 lbs. was small pay for my work. I think bees have paid us less this year than for many years, and yet farmers seem to make no large profit on any thing late years. It is only the careful saving of every thing, and selling what we don't use ourselves, that gives any profit in farming.

Our honey is not so nice-looking as in other years, as the bees did not seem to care to build comb, using only sections already drawn out, so that we are asking but 16 cts. wholesale and 18 retail.

WET YEARS ONE IN SEVEN.

That is what an old gentleman a few days ago said he had observed in his past life—if not a really wet year, yet more rain fell once in seven years. A want of moisture, I think, is the only reason of our honey failure in this locality. The ground is very dry down 20 feet. Nearly every one owning wells has had to dig deeper, and some have dug broader and deeper. The white clover has been scant and thin for years, and but very little along the roadside that used to be white, but they say it looks better this fall than last. Last year our bees gathered some from red clover, but not much this year. Sweet clover is working in along the roadsides, but the farmers mow it down all they can well get at, seeming to think it a bad weed. I had a small patch of sweet clover in my back yard that I kept trimmed about 2½ feet high. It was beautiful with its many white flowers for weeks in blossom, and filled the air with fragrance. Bees worked on it as long as it was in blossom, which lasted until frost, though not many bees were on it at any time.

OUR SCARLET CLOVER.

This, sowed the first of October, covers the ground beautifully where it is out of the reach of the chickens. We sowed some in the orchard twice, and tried to keep the chickens out; but they would steal in one way and another, and pick off every leaf as fast as it appeared, paying no attention to the young oats that were sown at the same time. We also sowed a small patch in our front yard, near the road, for a flower-bed, and to attract attention from passers-by, where we had only small chickens, but they too keep it all picked down, only as I have a part of it covered up with slatted boxes; but as fast as it grows high enough so they can reach it through the slats they take every leaf, showing it would be well to raise it for poultry as well as for bees.

BUCKWHEAT NOT RELIABLE.

Buckwheat failed again as a profitable honey-plant. A few hives of bees near a ten-acre field did not seem to get more honey than bees that could not reach it. Our field was hardly worth cutting for grain.

WINTERING BEES.

Since we gave large entrances at the sides of the combs by raising one side of the hive, and putting under a half-inch block (our hives are not nailed, but clamped at the corners), we have lost no colonies if they were in proper condition when put into the cellar with queens and sufficient honey. From three or four, when being piled up in the cellar, the block came out, letting the sides down, which gave them only their front entrances at the ends of the combs. They all came through in bad condition, and most of them kept dwindling down, and died

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before white clover came, showing that close confinement makes bees unhealthy. We generally leave the honey-board on top of the frames, and lay on the second honey-board; the slats between make a dead-air space. They were set in the cellar about the middle of November. We like that time better than to wait longer, unless warm weather continues. In that case we watch the weather, and set in with the coming of a cold wave.

WEAK COLONIES.

We do not try to winter any more, but unite; but on the weakest ones, in point of numbers, of the good colonies, so far as we can judge, we tie a red string, and set them in the center of the cellar, and leave them in the latest in spring, not leaving any later than the 1st to 10th of April. Several springs, our cellar being so full, we would take some out the middle of March, and once the first of March, so we could keep the rest cool enough until about the 1st of April. Then we took out the greater part, but left some few in until the last of April. The last ones taken out gave but very little surplus honey, not having built up into strong colonies soon enough. Those taken out the first and middle of March were better than those left in until the last of April.

OUR CELLAR.

This is 20x20. We find by repeated trial that that size keeps the temperature about right for about 80 or 90 colonies, one year with another. A few colonies in a large cellar are too cool and damp—something like a few bees in a large hive, or a few bees on too many combs; and if there are too many colonies in a small cellar, the bees often get too warm, and become uneasy, and flit out too much. One needs to learn just about how many colonies he can keep profitably in his own cellars, as no two are of equal temperature.

OUTDOOR WINTERING.

We have tried many ways of putting up our bees for wintering outdoors, and find no other so good as Moses Quinby's plan—the originator of our large hives—that of setting the brood-frames an inch from the bottom of the hive. We set them upon a frame, and reverse the brood-frames in the hive, and cover all with two or more thicknesses of carpet, and fill in all around the brood-frames with dry chaff, and on top. At the sides of the brood-frames are thin division-boards to keep the chaff from getting in among the bees. We used to tip the hives forward by setting a brick on end at the back side of the hives, while the front stood on a brick laid flat; but we find, if there is a long cold spell, the bees that drop down in the hive, and die, are more apt to close up the entrance, and there is no advantage in tipping up, as the dampness is absorbed by the chaff. If the entrance is not clogged, the bees will drag out the few dead ones when a warm spell comes.

If the bees are covered by a board, the dampness will gather upon the board and run down in front, clogging the entrance with ice more if pitched forward. If left level it drops down upon the bees; if slanting backward it leaves the entrance clear, but is more difficult for the bees to keep the dead ones dragged out; and if it were not for swaying the combs to one side, the slanting of the hive to one side would be better where a board is kept over the bees; but we very much prefer, for outdoor wintering, hives packed with dry chaff. I would emphasize the word *dry*—not wet or green chaff. All packing should be dry, whatever it may be. When we first began keeping bees, for several years we used buckwheat chaff after it was thrashed, and it would often be quite damp, with some green stems in it, and the covers were leaky. We lost a great many colonies then each winter. Since then we have dry oat chaff, gathered up direct from the thrashing-machine, and kept in the barn until wanted, and have covered our roofs with sheet tin, and painted them since then; and, other conditions being right, they have wintered much better.

CALIFORNIA HONEY.

Our stores are being flooded with a sweet that is called "California honey," put up in glass tumblers, retailing at 10 cts. each. Each glass has a small strip of comb honey, and filled with liquid syrup that does not taste like honey, yet possibly there is a small quantity mixed with the syrup that tastes more like corn syrup with a little honey stirred in than any thing else. On the glass it says, "Put up by" a certain man in Chicago, in small letters; but "California" is in large bold letters. Possibly the strip of comb honey came from California, but I doubt whether the rest did, as it could not be sold so cheap; yet our storekeepers claim it to be California honey. They say that it tastes exactly like sage honey. Its selling so cheap makes slow sale for our pure honey.

Roseville, Ill.

[California sage extracted is now selling for 3 cents in California. The car freight rate is about 1 ct. per lb. The jars at wholesale would cost the jobber about 1⅝ cts. This would leave only about 1⅛ cts. for putting up and labeling. It is possible for this honey to be pure, but it is probable that it was doctored a little, perhaps in that "wicked city of Chicago." Kindly send us a sample by express and we will investigate and report.—ED.]

DIVISIBLE BROOD-CHAMBERS.

QUEENS OCCUPYING TWO STORIES; AN IMPORTANT POINT TO CONSIDER BEFORE SHIPPING HONEY TO THE CITY MARKET.

By Dr. C. C. Miller.

The discussion that started with trying to determine the proper size of hives seems to have widened sufficiently to take in the form and kind of hive. On page 628, J. E. Hand ad-

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vocates the divisible brood-chamber as the only hive that has given him perfect control of his bees; and on the very next page the man who has, perhaps, used it longer than any other, denounces it, and holds up another hive that turns work into play.

However honest they may be, it's hardly possible they can both be right, and I may be excused for doubting whether either one is right. The tendency to doubting is increased with regard to Mr. Hand by the very broadness of his claim—the claim that the divisible brood-chamber gives him perfect control of his bees. I am not sure that I ever read or heard before of any one having *perfect* control of his bees. When my bees take it into their heads to make preparation for swarming, I can, like Mr. Hand, say to them, "Thus far shalt thou go, and no farther;" but the great trouble is, that they don't always mind what I say. I doubt if his are much more obedient. He goes scarcely a word farther than to say he has made a perfect success with no other than the divisible brood-chamber. But others who have made the same trial give exactly the opposite testimony. Whose testimony shall prevail?

So far as my own observation is concerned, I agree with him that queens will pass readily from one story to another, the trouble I reported about getting a queen to lay in a second chamber being when she was confined there against her will.

SOMETHING RICH.

J. L. Anderson has handed me a clipping of more than a column from the Chicago *Inter-Ocean*, being an article copied from the St. Louis *Globe-Democrat*. It is "A Naturalist's Story" from his own observations of the mating of birds and insects. Here's the part that refers to bees:

At or about the time the queen-bee feels the first promptings of love, and before she takes her flight from the hive in search of a lover, the drones may be seen any bright day congregated about the entrance of the hive, or making short and purposeless flights in the vicinity. They remind one very forcibly of the youths one sees loitering about church-doors or at the entrances of theaters, awaiting the outcomings of their sweethearts. The drones are much handsomer than the workers; their markings are different, their colors are more vivid, and their bodies are more graceful. I have repeatedly noticed them on the footboards of hives, walking slowly and sedately up and down, or making queer little waltzing movements, vibrating their wings in a rapid and agitated manner. When the queen flies forth she is immediately surrounded by a bevy of drone lovers.

Her choice of a lover may be the result of an accident, but I do not believe this is the case on all occasions. A queen and drone once fell at my feet, and, upon examination, I found that the queen was using her sting vigorously and effectively. The drone soon died, whereupon the queen abandoned him and accepted another lover before she disappeared from my sight. This seems to me to indicate that the queen exercises, on occasions, the right of choice.

How's that for richness? I think I'll not spoil it by further comment.

FIXING PRICES IN HOME MARKET.

G. M. Doolittle gives some excellent advice about marketing honey, on p. 633, among other things advising to sell in the home market if you can get within a cent a pound of what it will bring you when shipped on commission. For the benefit of some, it may be well to mention the exceptional cases that sometimes occur when there is a failure of the crop in your own locality. Suppose your home market requires 5000 lbs., and you have secured only 2000 lbs., and no other is to be had nearer than the city market. Looking at the market reports you find it quoted at 14 cts. Deducting freight and commission you find you will have less than 13 cts. left; and considering all risks as to breakage, etc., you will do well to count that a cent less; or 12 cts. in your home market will be as well as or better than to ship to the city. So you sell your 2000 lbs. at home for $240. The merchants of your town must send to the city for an additional 3000 lbs., and freight and risk is such that it costs them, besides the 14 cts. paid in the city, an additional cent or more. Indeed, they would rather pay 15 cts. cash delivered at the store than to send to the city. Is there any justice in paying 15 cts. for the 3000 lbs., and giving you only 12 for the 2000? I don't see any reason why you should not have the 15 cts., and thus put $60.00 more in your pocket. So when the crop is such that your home market must be partly supplied from the city market, you should get in your home market at least the full amount of the price quoted in the city market.

Marengo, Ill.

REPORT FROM DR. BLANTON.

Friend Root:—The honey season for 1895 was very discouraging. The spring was exceedingly cold and backward, with much rainfall, and the cold "snaps" ran well into the month of June. The month of May was quite dry; June, July, and August excessively rainy. Very little white-clover honey was gathered, and most of the crop was quite dark, and of an inferior quality. My sales were from 3½ to 5c. I rate the crop in this rich alluvial district at one-third. I commenced the season with 183 colonies, spring count, and extracted 7075 lbs., with a yield of 135 lbs. of wax, and closed the season with 260 colonies. I had a large surplus of comb honey in L. frames, as I did not extract after August 15th. All the weak colonies I supplied with comb honey enough to carry them through the winter. I feel much discouraged, but will "pick my flint and try again," and increase in the spring by dividing to 400 colonies, 200 in each apiary.

From an experience of 25 years I obtain the best results from a big hive—ten Langstroth frames in the lower story and eleven in the upper.

I have acquired almost as good results from 20-frame one-story L. hives, but they are more

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expensive, requiring twice the quantity of sheeting and top, besides covering so much ground. They are so easy to manipulate that a beekeeper of little experience has not the judgment to leave a sufficient amount of honey for the brood. O. M. BLANTON.

Greenville, Miss., Dec. 1.

WINTERING BEES IN HIVES PARTLY FILLED WITH COMBS.

Question.—Please give me a little information in GLEANINGS in regard to my bees. I have them in a cellar under a part of the house where the temperature can be kept at from 40 to 45 degrees. A part of the colonies filled only one-half of the hive with comb, the other half being empty. What ought I to do with these to have them winter to the best advantage?

Answer.—Much depends upon the shape of the empty space. If it should so happen that the bees are in frame hives, and that half of the frames were filled with comb and the other half empty, the proper course would be to take out the empty frames and insert a division-board close up to the frames left. But if, as would most likely be the case where the bees were left to themselves, the comb was in box hives, or was built in all of the frames about half way down, the middle frames containing more and the outside less, then it would be as well to leave them as they are, for they could not be helped much by any contraction of the hive which could be done. Bees winter best with a vacant space under the combs, and for this reason they would winter well as they are, providing all other conditions were favorable. However, I should advise that, in the future, the bees have only the number of frames, or amount of hive space they can fill, given them when they are hived, if you have not already looked after this; for then, in the case of frame hives (and you should use no other), it would be easy to fill out the hive with frames from other hives, or contract with a division board as best suited to your wants.

FEEDING BEES WHEN IN WINTER QUARTERS.

Question.—I hardly think that the bees spoken of above have honey enough to last them until spring. How can I feed them? I shall have to feed them sugar syrup, as I have no honey of any kind on hand.

Answer.—In the first place, this matter should have been looked after last fall, during the month of October, or earlier, if you do not have flowers which are likely to yield honey during the month of September, for the winter is a very poor time to feed bees. But as this was not looked after when it should have been, we must meet the conditions as we find them. Therefore I should arrange the hives so I could inspect them every week without disturbing them after the arranging, except to lift the covering over them, which can be done so gently that the bees will not notice it. To inspect them, take a sperm or wax candle with you into the cellar, as this is far better than a lamp for this purpose, as you can throw the light just where you want it without the heat affecting the bee, or running the oil out of your lamp, both generally being done where a lamp is used. Having the candle held near the top of the hive, carefully raise the covering, which should be of cloth (put on in arranging, if you did not already have this cloth on); and as soon as raised, run the eye over the tops of the combs; and as long as any sealed honey is seen near the bees, no feeding is necessary, and the bees should not be further disturbed. If no such honey is seen, then the bees must be fed. If it should so happen that there is plenty of sealed honey on one side of the hive, while the cluster of bees is on the other, the combs should be changed so the honey will be near the bees, fixing something over the tops of the frames, but under the covering, so that the bees can easily move over the tops of the frames on to this honey, else they may starve by failing to cross over or around to the honey. If it becomes necessary to feed, remove one or two of the empty combs from the side of the hive farthest from the bees, so as to disturb the bees as little as possible, and also not to have live bees on the combs when the combs are taken to the shop or house and filled with syrup. This syrup should be of about the consistency of honey, and about blood warm, so as to go into the cells easily. To get it into the cells, pour in a fine stream from a dipper, or some utensil having a spout, which should be held a foot or more above the combs so that the falling liquid will force the air out of the cells, thus filling them. If this is not done, the syrup will simply run over the tops of the cells, not filling them at all. To prevent spattering and daubing things, it is best to lay the comb flat down in some rather deep vessel so that the sides will catch all that flies off, preventing all waste also, so that what is caught in this vessel can be used for filling other combs. After filling as many combs as you wish, spread the frames of comb in the hive till you divide the cluster apart, somewhat, on one side, going slowly so that no bees need drop down out of the hive, and place the combs of syrup in the empty space thus made, when all should be brought up to bee-space apart again. Enough should be set in to last until spring, so as not to be often disturbing the bees. If you set the candle a little way from the bees, and work carefully, being especially careful not to breathe upon them, you will have no trouble

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from their flying or leaving their combs so but that they will run back on to them again. If the bees are in box hives, all you can do is to guess at their condition; and if you guess they are short of stores, then turn the hives bottom side up, and pour some of the blood-warm syrup on the combs and bees. But if I had bees thus in box hives I would as soon risk them as to their starving as to risk their dying from the disturbance necessary to this way of feeding. The days of box hives are past; and if our questioner has bees in such hives, I trust that they will not thus be after next June.

NEW subscriptions, as well as renewals, are fairly pouring in upon us now. Thanks.

Do not fail to read the very important article by Prof. Cook, in this issue, on how bee keepers may prevent low prices on honey, and paying exorbitant freight rates.

I EXPECT to be present at the Chicago convention, Jan. 9, 10. The place of meeting is to be the New Briggs Hotel, Chicago. I shall be glad to meet any of the friends whom I have disappointed at other conventions which I could not attend, owing to ill health. Tickets will be sold on the certificate plan, 1⅓ fare, round trip. Purchase tickets of your local agent and call for a certificate.

"A NUMBER of complaints have been received at this office recently against C. R. Horrie & Co., a commission firm at 224 South Water St., Chicago," says the editor of the *American Bee Journal*. Complaints have also come in to us, and, for the present at least, we must caution bee-keepers against sending them honey. Some time ago they sent us their advertisement; but we refused to insert it because their commercial rating was hardly satisfactory. It seems some of the journals did accept their "ad," and one publisher furnished them his list of bee-keepers' names. At all events, they received a large number of consignments, and by reports, it appears, that some bee-keepepes at least, are getting any thing but satisfactory returns.

I STATED, in our last issue, and, as I thought, at the request of the publisher, that the *Bee-keepers' Quarterly* had been discontinued; but Mr. Heddon, it seems, changed his mind after he wrote us to that effect. At all events, our first intimation of the matter was a postal reading thus: "Please make no mention of the suspension of the *Quarterly* until you hear from me again." Well, a day or two after, along came a letter from Mr. Heddon, stating that his paper was discontinued, and giving his reasons in full. Naturally enough I supposed this was *the* letter that was to come. I did not notice at the time that both postal and letter bore the same date. It seems, then, that the postal which Mr. H. *intended* should countermand the letter got here first through some bungling in the mails. Notice that the postal does not say that Mr. H. had changed his mind, or that the paper was *not* to be discontinued, but simply left me to infer that a letter was to come giving particulars, and this letter asked me to make the notice which I did. While I can't see that I was at fault, I regret the mistake. As I understand it, Mr. Heddon's health has improved so that the *Quarterly* will be continued as usual.

HONEY-BOARDS OR NON-BURR-COMB TOP-BARS.

IN the *American Bee Journal*, Query 999, this question is asked: "To prevent burr-combs, is any thing as good as the Heddon slatted honey-board? If so, what?" Of the 24 who answer, 4 give it as their opinion that there is nothing as good; 17 think there is something just as good, and better. Of this number some lay stress upon exact bee-space, and generally ¼ inch, and not over that, and others on thick and wide top-bars in *connection with* exact bee-spaces. Only three of the entire number—that is, out of the 24—express themselves as not being competent to speak on the subject.

When this question was propounded a few years ago in the same journal, and in the same department, a great majority expressed themselves as being in favor of the slatted honey-board. The tables now seem to be pretty nearly turned in favor of top-bars and bee-spaces as against the slatted boards; but I notice that none of the respondents strike upon this point—that the honey-board does away with *only one* set of burr-combs between the slatted board and the super. Between it and the brood-frames below, if the old-fashioned spacing is used, and narrow top-bars, there is the usual set of burr-combs. By the use of thicker and wider top-bars, and a bee-space of ¼ inch, we do away with practically *all* the burr-combs. It seems to me there is no comparison between one system and the other. The slatted honey-board only *half* does the work, and the other system does it *all*, or practically so.

RAMBLER ARTICLES AGAIN.

IN our last issue I stated that the Rambler articles were to be discontinued with that number, unless there was a substantial request from our subscribers to the contrary. Later, since that time, postals have been pouring in at a good rate, saying something like this: "Keep up those Rambler articles; or, at least, give us

some substitute, from J. H. Martin (Rambler). We enjoy his writings and want them continued."

Mr. Martin, for various reasons, has decided to settle down "in some lovely spot in California," and keep bees for all there is in them. He has traveled thousands of miles for GLEANINGS, and now desires a rest. I am happy to state, however, that he is "hatching up a new scheme" that I think will prove, perhaps, as interesting, if not more so, as his Rambles of old. I have no doubt, too, that, after the busy season, his old yearnings for outings will come back, and another rambling-tour will be taken, the result of which will be given to the readers of GLEANINGS in his usual style. I said he was hatching up a new scheme. GLEANINGS never makes a business of telling very much beforehand what it proposes to do, except in cases where our plans are so fully matured as to be practically under way. So I'll not say more at this time.

THAT "EVERLASTING FOOTNOTE."

OUR answers to articles have sometimes been referred to as above in a connection that implies that they are written for the express purpose of counteracting what was said in the article just preceding. If our readers will take careful notice, they will see that it is seldom that I take occasion to disagree with or criticise the statements of a writer; and I do it then only to correct what, in our judgment, I consider to be an error, or, at least, something if unchallenged that would lead only to expensive mistakes. Sometimes a writer proposes a plan that some of us have tried to our sorrow; and, obviously, it is to the betterment of apiculture that the result of that test be made public. The *main* object of the footnote in our columns is to enlarge upon something that is already stated, or to emphasize that which needs more prominence than is given in the article.

Several times in years past we have asked our readers if they would prefer to have the footnote omitted. But a flood of postals always poured in, saying, "No, no, Bro. Root! keep them going right along." Some say they read them first, and then the article. Others have said the articles would not be of much value to them unless they received the editorial indorsement. Out of hundreds of cards in the past, giving various sorts of expressions, I think we have received scarcely one requesting their discontinuance.

Now please don't let any one get the impression that when the footnote is omitted from any article that this article does not receive our indorsement. On the contrary, it is complete in itself, and nothing that I can say will emphasize or add to it.

THE HONEY BUSINESS IN GOVERNMENT BULLETINS.

IN the last Report of the Secretary of Agriculture, bearing date 1895, under the head of "Subsidiary Farm Products," a little "information" is offered in regard to honey. The person who wrote up the subject was not, evidently, very well versed in apicultural phraseology. For instance, he uses such sentences as these: "All honeys sent to England are *strained*, except a nominal amount that reaches there in the comb from California." And again: "The Department has knowledge that, some years ago, a large honey-*maker* in California found in China a profitable market for some 20 tons of honey annually." Again, "In this, as in every other branch of industry, only the *makes* of the best, most genuine products, can secure a permanent, profitable trade." The italics in the above are mine. No reputable bee-keeper "makes" honey, but he does "produce" it. It is evident that the writer did not intend to throw discredit on the industry; but such phraseology would rather imply that his knowledge of the business was comparatively limited—too limited, in fact, to be able to write intelligently for a government bulletin. His statements as to facts, also, are more or less wide of the mark.

It is to be regretted that there is so much of this kind of work from the hands of our government officials, especially as all needed information in regard to honey, or any thing else, can be so easily procured from sources which are unquestionably authentic. It is too often the case that the government agent gets his position through "political pull," when he is utterly incompetent. I am pleased to note, however, that the President has recently put more offices under the civil-service rules. Every official should be obliged to pass a rigid examination; and, when a competent man is found he should be kept, independently of party changes.

Some one has recently asked if we could not have a distinctly apicultural bulletin, issued by the general government. Well, here we have it, and it is in marked contrast to some of those of which I have just been speaking.

A 120-PAGE BEE-BOOK FOR FREE DISTRIBUTION.

I HAVE been aware for some time that Mr. Frank Benton, who has been in charge of the apiarian work of the division of the Department of Agriculture, Washington, D. C., was preparing a bulletin on the subject of bees. A few days ago I was surprised, and very agreeably so, to receive the advance proof-sheets of so *large* a text-book from the Government. Bulletin No. 1, entitled "The Honey-bee: a Manual of Instruction in Apiculture. By Frank Benton." There are in all 120 pages of bee-matter, profusely illustrated. Some of the cuts are drawn from other sources, but the majority of them are original. I have had only time to glance over the work, but have reviewed it carefully enough to say that it is practical and

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fully abreast of the times. As Mr. Benton is a scholar and a thorough student the style of the writing, as well as the subject matter, is of the best. I have read a good many of the pages, and so far have not found any one of which I could not say, "This is about as near right as it could be stated." I should like to give you the list of contents, but our space is too limited. The following are subjects of the chapters as they occur through the book:

1. Classification of the Honey-bee; 2. Kinds of Bees composing a Colony; 3. Quieting and manipulating Bees; 4. Establishing an Out-apiary; 5. Hives and Implements; 6. Bee-pasturage; 7. Spring Manipulation; 8. Securing surplus Honey and Wax; 9. Rearing and introducing Queens; 10. Increase of Colonies; 11. Wintering Bees; 12. Diseases and Enemies of Bees.

It is needless to say that no one is more competent to write on the subjects given in chapters 1, 6, and 9, than Mr. Benton. The first, doubtless, gives us the most accurate information on the subject of the different varieties of bees of any thing there is in print; for Mr. Benton has traveled over the world in search of new races. Chapter 6, bee-pasturage, is very full, and the illustrations are fine.

Five thousand copies of this work will be "ready for distribution by the Department of Agriculture in a few days. It is, like all other bulletins of the department, for gratuitous distribution to applicants in the order in which the requests are received."

WORK AT THE MICHIGAN EXPERIMENT APIARY; FOUNDATION, AND WHICH GIVES MOST HONEY TO THE CASE.

In the *Bee-keepers' Review* for November, Mr. R. L. Taylor tells of a second series of experiments in testing the relative values of the different foundations—that is, the different makes. The experiments of last year seemed to show, if I remember correctly, that the Given had a little the lead; that is, the bees built out the Given more rapidly, and filled it plumper with honey than the other sorts of foundation alternated with it.

This year Mr. Taylor took a series of cases, each of a capacity of 24 lbs.—as many cases as there were samples of foundation to be tested. "To make the test a fair one, each case was filled with one of the sorts of foundation selected for the trial, and the other half with another sort, the two sorts being made to alternate throughout." For instance: One case contained 12 sections filled with Dadant foundation, and 12 sections with the Given. Each row of foundation alternated, as I understand it, with another row of the other kind. Another case was prepared in a similar way with Root foundation and Given, and so on through the list. It will be noticed from this that the Given was used as a standard of comparison in each case; and this particular Given was made from wax of a "hard brittle character"—the object of selecting the hard wax being, I suppose, to get a foundation which would yield results rather under the others to be compared.

The foundations tested were obtained in such a way that the makers would not be prepared to send something special. The different sorts tested were the Dadant, Root, Hunt, Given (made of hard wax), the Root-Given (Given foundation with heavy side-walls, made on Root rolls), and old Given, that which had been used in the tests of last year.

Well, after all the cases above mentioned containing Root, Root-Given, Hunt, and old Given, were drawn out and filled with honey, the cases were weighed, and the relative amounts to the credit of each foundation are set forth in a table. With one single exception there was less honey built from the Given foundation than from any of the other sorts—the reason for this being, I suppose, because the wax in the first place was harder. There was 8 per cent more honey built from the Roots than from the Given; $3\frac{6}{10}$ per cent more from the Root-Given than from the Given; 15 per cent more from the Hunt than from the Given; and 23 per cent more from the *old* Given than from the Given.

Another interesting fact is, that the Given foundation made on rolls, or, rather, that foundation having heavy side walls, and a perfect fac-simile of the side walls of the wax made from the Given press, compares very favorably with that made upon the press. In the cases containing the rolled Given and the Given, the half super of the former weighed 12 lbs. 6 oz., and the latter 11 lbs. 15 oz. But here, perhaps, Mr. Taylor may differ with me in stating that the *old* Given gave 23 per cent of excess over the Given made on a press; but this case of honey may have been on a better colony than the old Given.

Taking it all in all, I am strongly of the opinion that the foregoing tests do not prove the superiority of the *method* of embossing the wax after it is sheeted, so much as it proves the superiority of the more pliable wax over that less so *before it is embossed.* The nearer we can get to having the wax soft in the first place, the quicker will the honey be filled out, and the fatter the sections.

For instance, in the Root and Given super the two sorts of wax contained exactly the same number of feet to the pound (10.92); but the Root gave 11 lbs. 9 oz., and the Given, made, as you will remember, from selected hard wax, 10 lbs. 11 oz. per half-case.

I expect great things from the new process of sheeting wax under the Weed patent. The old method of dipping to procure sheets, compared with the Weed method, gave us products that are as cast iron to wrought. The wax by the old method is brittle, while that by the new method is soft and pliable.

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DOCTORING WITHOUT MEDICINE; MORE ABOUT ZWIEBACK.

From the inquiries received, I feel sure many of the friends will be interested in this wonderful new health-food for invalids. One comforting thing about it is, it is not only cheaper than medicine and doctors, but is cheaper, at the present low price of wheat, than almost any thing else one can *live* upon. Get the very best quality of wheat you can find. If you think the wheat from Minnesota is superior to that in your own locality, get some Minnesota wheat. Have it cleaned in the most approved manner. Remove not only all foreign seeds, but all shrunken or broken grains. An expert miller can do it for you, or perhaps add the finishing touch to the cleaning. I do not know how many mills for making whole-wheat flour there are in the country. The apparatus is very simple. I have visited the one within four or five miles of us, and I have asked our miller to tell me something about it. Here is his letter:

Mr. A. I. Root:—The wheat is first thoroughly cleaned and scoured, and then ground on a buhr mill with a very smooth face, then bolted on a centrifugal reel manufactured by myself. It is clothed with silk cloth. The process is very slow, as it is necessary to get all the gluten off the bran; and by grinding too fast you are unable to do this. The gluten is the most essential part of the whole-wheat flour. The buhr mill I am using is a 20-inch mill manufactured by Nordyke & Marmon Manufacturing Co., Indianapolis, Ind.

If there is any thing more you wish to know I should be glad to give you any information I can.

Abbeyville, O., Nov. 29. W. B. McKENNEY.

In regard to the price of the mill, he has since written as follows:

I am unable to give prices on machinery for manufacturing whole-wheat flour, but I should think $300 would purchase all the machinery necessary.

Abbeyville, O., Dec. 3. W. B. McKENNEY.

Several have informed me that they have made excellent whole-wheat flour by grinding it fine in one of the large-sized coffee-mills, or even in the Wilson bone-mills which we offer for sale. That produced by the writer of the above letters is mostly sold in 10-lb. sacks. A 10-pound sack costs us 25 cts. It is retailed by the grocers generally at 30 cts. I believe it is considered better to buy a little at a time, and often. Ordinary fine wheat flour can be kept several months, or a year; and, in fact, a good many people buy their year's supply at one time; and the good housewife, when she gets acquainted with a certain brand of flour, knows just what to calculate upon for a whole year. Well, for some reason I can not explain, the whole-wheat flour does not keep like the other. Friend McKenney advises all his patrons to make bread from the whole-wheat flour exactly as you would make nice white bread. I have interviewed Mrs. Root, and, as nearly as I can make out, the process is about as follows:

In two quarts of water and milk* (half and half) she dissolves four cakes of compressed yeast. If you do not use such yeast, vary the directions I have given, accordingly. Now sift in your whole-wheat flour until the dough is sufficiently stiff to be kneaded. Knead well, and put it in a bread-pan. Set it away where the temperature will be just right for it to rise. We have a shelf just over the reservoir of our Stewart stove, near the pipe, where the temperature is always just about right. When it is ready, which will be in about three hours or less, it is made into loaves, and they are baked in what we call the World's Fair baking-tin. We call it "World's Fair" because she learned the process during our visit to the World's Fair. It was given in a talk by Mrs. Ewing, a celebrated teacher on bread-making. These bread-tins I am speaking of are about like a section of small stovepipe split in two lengthwise—a shallow trough without ends. The advantage is, that the bread bakes much better than where the bottom of the tin is flat. She has made such delicious and toothsome bread ever since that visit to the World's Fair that we as a family have become large bread-consumers. If you have not tried any of the World's Fair bread I think you had better have some, for we pronounce it by all odds the best bread in the world. The recipe given above calls for an extra quantity of yeast, and this costs something, I know; but if you can get a family to eating bread largely, instead of the crackers bought at the grocery, or pie and cake, you will save in health and in doctors' bills ever so much more than the cost of a few more yeast cakes at 2 cts. each. In my directions for zwieback, I said bake the slices of bread several hours. Mrs. Root tells me the zwieback is better, and more crisp, to be baked as quickly as you can without having it brown on the outside before the middle is perfectly dry. In fact, some of the nicest I ever ate was made and all finished the same day the bread was baked.

Now, for a good while, even while our family was using zwieback to a large extent, I refused to touch it. I said they might eat "dry crusts" if they wanted to, but I hadn't time for so much foolishness. Since I have been under the doctor's care, however, I have become so fond of it that I never know when to stop eating. In fact, I think I could eat zwieback for two hours, and still enjoy it. Sometimes when hurried I have put a piece in my pocket, and have eaten it leisurely at my work. Or if the womenfolks get in a hurry, and want to clear off the table, I sometimes sit down at my desk, with my agricultural papers, and eat zwieback while I read. After it has been chewed up fine I still chew until it is a delicious creamy mixture, made by combining with the liquids of the mouth, produced by nature for this very purpose. Now, if you stop chewing for a little while, because you have got your mind on something else, you will all at once wake up to the fact that you hold in your mouth the most delicious food you ever tasted. In fact, I have often thought, especially of late, that there is nothing in the way of fruits, nuts, fish, or game, that could be compared with it as an article of food; and the very best thing about it is that it never leaves any unpleasant taste after you stop eating—no, not even if you eat zwieback for an hour. The same is true with the lean-meat or beefsteak diet; but, in my experience, with a very few other articles of food. For years I have been so accustomed to having a sort of sour or bitter taste in my mouth for

*The milk should be omitted in treating people who are very sick; in fact, I have tried to have Mrs. Root omit the milk. She says she can not make real good bread without it, and all the rest of the family very much prefer it, and so I have used it in that way. I have written to Dr. Lewis in regard to the matter, and here is his reply:

Dear Mr. Root:—Bread made of whole-wheat flour is more easily digested without the milk or cream; and for dyspeptics it is much better. The milk and cream make it sweeter, and for some persons more palatable. In our own management of all organic troubles, breadstuffs of all sorts are prohibited until they can be taken without injury to the patient. When allowed it should be under the watchful care of a physician trained along the line of treatment we advocate and practice. Glad to know you are feeling better. Do not digress too frequently or too radically. J. M. LEWIS.

Cleveland, O., Nov. 25.

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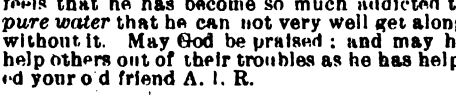
some little time after eating almost any thing, that I got to expect it as a matter of course. With the lean meat or zwieback I have never noticed this once; but if I eat fruit or sweets of any sort, the same old result is sure to follow. Very nice zwieback can be made of *white* bread, or even of *baker's* bread, but it has not the rich nutty flavor that we find in that made from whole-wheat flour. Well might bread be truthfully termed the "staff of life," if the bread is made of whole-wheat flour, and then afterward baked, or twice baked, as I have described. I believe invalids almost all agree in regard to this. Let me say once more, that it is ever so much cheaper than crackers, and ever so much more wholesome. I do wish zwieback of some kind might more largely take the place of crackers. When I went to Atlanta I carried along such a quantity that I brought some back. It was put aside, and by some oversight it did not get on the table until two or three weeks after it was made, besides taking that long journey in my lunch-basket. But after all this, the whole family pronounced it just as good as the freshest made. I believe, however, Mrs. Root gave it a third baking in the oven, to purify it and dry it out. If I am correct, Drs. Lewis and Salisbury place zwieback next to lean beef, and I am sure they are right. Vegetarians and meat-eaters can all unite and agree on zwieback, even if they do not on the rest.

Now, when one has got so that he can eat other kinds of food, what shall he take next? Well, I presume each person must experiment and study into the matter for himself. I found the gluten preparation or graham crackers, granose, wheat-germ grits, and Pettijohn's breakfast-food, to come next to the zwieback. In the way of fruit I was pretty strongly inclined to baked apples, or nice apple-sauce made without sugar, first. Dr. Lewis, however, places California prunes, cooked without sugar, ahead of any other fruit; and after considerable careful experimenting I have decided his head is level in this matter also. I wonder if our friends out in California, who raise prunes by the tons and carloads, are aware of this fact. Why don't they make a bigger stir about it?

When the digestion is still weak, the prunes should be first boiled, and the water or juice poured off. In some cases it may be better to do this a second time. Now cook them once more, carefully peel off the skins, and eat the pulp with your zwieback (of course, you will not swallow the stone); and if you commence eating, say one at breakfast, and no more during the day, and keep this up until your digestive apparatus has learned how to manage the one prune, then you may take one at breakfast and one at dinner; and in a little more time you may take two at breakfast and two at dinner, and finally three; and later still as many as you really care for, just as you eat your meat and zwieback. If, however, you should *commence* by eating a whole saucerful just because they taste so delicious, you would have a backset, and possibly imagine that all the pains you had taken with your diet had not really amounted to any thing—you were the same old sixpence. Your digestion must get acquainted with things just exactly as *people* must get acquainted with each other. When any delicacy in the way of fruit or vegetables first comes on to the table at the proper season, take a *little* at first. One reason why so many people say honey makes them sick is because they go and eat a great lot when they have not tasted any honey before for perhaps weeks or even months. No wonder it did not "agree" with them.

Now I have something more to tell in regard to doctoring without medicine. My venerable friend VanDeusen was inclined to poke fun at me at Atlanta because I had two kinds of medicine to take, even in a public restaurant, before I commenced on my meat and zwieback. At present I am not taking a particle of medicine, and have not been for some little time. Now, this is not the best part of it. The best is this: I was really surprised to find a few days ago that I had reached a point when I not only did not *need* the medicine, but was better off without it. My digestive apparatus seemed to say, "Look here, Bro. Root; this outside assistance is not needed at all now. In fact, it is beginning to stir up unpleasantness." I took the hint, and used a smaller dose. Finally Nature said, "We do not want the *smaller* dose. There is now no need of any 'physic' or any thing of the sort. You just leave your medicine on the sideboard, and attend to your other affairs, and we will run your daily habits as regularly as a clock." And Nature is doing it right straight along. It is a mystery to me, and I can hardly understand it. I can eat as much beefsteak at a meal as is used by a good sized family ordinarily — yes, more too; and I can do it three times a day, and not a bit of constipation. I am now eating just what I please, if you will accept this last with some modification. I am not using any sugar, however, *at all*. I do not *want* it. I have prunes whenever I want them, and as many as I want. I can almost say the same of baked apples. I should like potatoes in a little larger quantity than Nature approves of; but this is a comparatively small trifle.

Before I go further, perhaps I should say I tried leaving off medicine several times during the first three or four months of my beef diet, but it did not answer. Again and again I was forced to conclude that the *doctor* knew best. I have always been afraid of becoming a slave to quinine, physic, pepsin, or something of that sort. You might in one sense say I am a slave to lean meat even yet; but I think no more, or but little more so, than to hot water. I rarely drink *any thing* at my meals, but I do have big drinks of hot water in the middle of the forenoon and middle of the afternoon, and this I must have. One need not worry, however, when he feels that he has become so much addicted to *pure water* that he can not very well get along without it. May God be praised; and may he help others out of their troubles as he has helped your old friend A. I. R.



ATLANTA.

By some misunderstanding, the first session of the bee-keepers' congress was to meet in Council Hall, on the exposition grounds. It was announced through the bee journals to be at the Hotel Jackson. This threw things out of shape, so that the first day was spent mainly on the exposition grounds.

The 4th of December, you will remember, was not only about the coldest day during the whole of that month, but it was one of the coldest days ever known in Atlanta in any month or any winter. On leaving home I took the precaution to be well bundled up; and, fearing I should get chilled, I chose to go over to the grounds by steam-cars instead of by the electric line. Somebody said they were rather warmer.

First we had to wait for the cars to start. There was no warm depot to wait in as we have here at the North, and the cars themselves were simply open summer conveyances. Of course, there were some very loose light curtains flapping in the winds; but these only served to make one more chilly. By the time I reached the exposition I was chilled through and through. Somebody said Machinery Hall would be the warmest place early in the morning; but the weather was unexpected to most of the people, and a good deal of the machinery seemed to be frozen up. One might get up near the great engines, and warm up one side while the other got chilled. Perhaps I had better call a halt right here or I shall be complaining before I know it. People with much vitality, and strong, robust constitutions, where they were exceedingly well clothed, perhaps did not mind the weather very much; although I am inclined to think that many others suffered as well as myself; for wherever there was a warm place, even if it were only a big campfire in the open air, I saw rich and poor, little and big, white and colored, huddling up close together to get warm, forgetting all imaginary lines of caste and social standing. Since getting home I am told that some of the friends from Florida caught severe colds, just as I—*came pretty near doing*.

There was enough in Machinery Hall alone for one to study a whole day, and so with dozens of other buildings. One of the first things that attracted my attention was a new device for raising water. The way you get the water out of the well is to pump air down to the bottom; and by an ingenious contrivance the compressed air is made to go under the water, and shoot it out of the top of the well, bringing sand, gravel, dirt, and every thing else up. There were several things accomplished by this device. First your windmill, engine, or other power that works the air-pump, may be at any convenient distance from the well, for you can send air through iron pipes laid right on top of the ground, without any danger of freezing. There are no valves to clog and stick up and wear out. The water pours forth in a steady, constant stream, so long as the air is forced down into the well.

Pretty nearly all the varieties of automatic machinery we saw at the World's Fair were at Atlanta; and some things of later date than the World's Fair times. An automatic machine turned out corkscrews by the bushel, ton, or carload. All it wanted was wire, and power to move it. Speaking of automatic devices reminds me that I have always been greatly interested in devices whereby machinery might do the work of buying and selling. Hold on! I do not believe I ever saw a machine that would make purchases, and drive sharp bargains; but we do now have quite a good many machines for *selling* various commodities. At the World's Fair, you know an automatic machine sold Waukesha drinking-water for a penny a glass. Well, at Atlanta, stationed all over the grounds, we saw solemn-looking machines proclaiming to passers-by, "Ice-cold orange cider for a nickel a glass."

The "ice-cold" was rather a burlesque on that particular day. If the machine had said hot coffee or hot water, the former would have struck the crowd more favorably, and the latter would have hit *me* exactly. Other beverages than orange cider were also served by automatic machinery. I do not know how much they were patronized, or how well the apparatus did its work; but it seems to me as though there might be a great future in developing this matter of having machines to receive money and deliver goods of certain staple kinds. The machines themselves certainly would not be guilty of running off with the money, cheating in change, nor giving scrimp or scant measure; at least, if it scrimped to one individual it would scrimp to all, so there would be no partiality or favoritism. Perhaps I might mention here that hot tea and coffee were sold all over the grounds for a nickel — that is, where the apparatus was not frozen up.

Friend Danzenbaker had a stand in Agricultural Building, where he explained the wonderful advantages of his hive. I asked one of the bee-friends if he kept there right along; and when he nodded assent I said, "Why, how does he keep warm in a building that has no arrangements for heating?"

The reply was, "He keeps warm by talking, of course."

Lest I be accused of sarcasm I want to say right here that friend Danzenbaker is certainly a well-posted bee-keeper. His ideas—at least most of them—are sound, and he is doubtless doing a vast amount of good by explaining things to crowds, and directing bee-keepers into better and more improved channels of work.

Somebody suggested that Electricity Building would be warm, and so we started over there. On the way one of the crowd said: "O Mr. Root! you must take just one glimpse of this building here, even if you *are* cold." This was the industrial department for work of the colored people, and it was indeed a surprise. Had no one told you, you might have mistaken it in many respects for an average exposition building. Not only in the products of the soil, but in almost all the industrial arts, there were samples of work that would compare favorably with almost any thing we have; and, best of all, there were samples of their school work—writing, drawing, composition, kindergarten work, and every thing else to show what the colored schools of the South were accomplishing. Best of all, there were excellent photographs, taken, of course, by colored artists, of the educated and intelligent colored men and women. My eye caught a glimpse of Booker Washington, and then quite an array of excellent pictures of ministers, lawyers, and doctors, among the colored people. Well has it been said that the crop of boys and girls are the most important crop that any farmer ever undertook to grow. But it takes more than one summer—yes, or a decade of summers—to grow a crop of educated men and women. The idea burst upon my intelligence with wonderful power, that the first, or almost the first, crop—matured crop—of colored people, the work of educating the freemen of the South, was just now coming before the world.

A colored lady stood near the entrance, to welcome visitors. Notwithstanding her features showed almost pure African blood, there was an air of gentility, self-possession, and refinement that nothing but education can give; and when some vulgar and uncourteous white people who were passing by looked her in the face with a bold stare, and said, with a coarse, unfeeling laugh, "Well, that is pretty good for niggers, any way," our colored friend had not only education enough, but grace from the Lord Jesus Christ, to reply with gentleness, and even with a pleasant smile, to those rude sallies. Education and Christianity can not, it is true, make a dark skin white; but they can change the coarse low mind into one of gentleness, purity, and truth. I do not know just how to solve this problem of the colored people and the whites living side by side; but I do know that the spirit of intelligence and meek Christianity should be recognized and *respected*,

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no matter whether its possessor be white or black.

Just then I was admonished that, if I did not get into some warm building, I should be chilled to such an extent that there would hardly be a vestige of the work left of what the beefsteak diet has been doing in the last few months. We went into Electricity Building; but while it glittered like the northern lights, with shining metal and scintillating dynamos, it also seemed to me like the *chill* of the northern lights away up to where they are tied up in bundles around the very north pole itself. I cut loose from the crowd, and told them I should have to get warmed up, regardless of any thing else. I saw a notice, "Japanese tea, a nickel a cup." A couple of pleasant young ladies were presiding; but the cold was so great they had hardly "thawed out" the tea. I drank one cup, but it was not very warm, and asked for another. This was tendered with some crisp wafer crackers, and all for a nickel. I should have preferred the hot water alone; but I ate the wafers out of courtesy—not because I wanted them. I do not know but they felt sorry for me; and, to tell the truth, I suppose the people were all sorry. They were very kind and courteous, and every thing I asked for was very reasonable indeed.

Somebody told me just about this time that the Florida building was always warm. They had exotic plants there that could not be allowed to get cold, so I spent a great part of my time there, reviewing the familiar scenes of last winter. I have told you about the shell mounds of Florida. Well, the Florida building is one immense shell mound. The very sight of it made my heart throb with pleasant recollections. About half way to the top of the mound there is a sort of jog in the incline, and a band of windows passes clear around on one level. The embankment of earth to elevate the mound keeps out the frost, and a dozen steam-radiators make the building very comfortable. There I saw, in large raised maps, the whole topography of the country I passed over last winter. The shining lakes that are sprinkled almost like snowflakes over almost the whole of the State are represented on the map by pieces of glass. The Florida friends pointed out to us where they lived and the good honey localities; and a thousand other things we have read about, but could not really understand, are very plain as you see them on the raised map.

In the afternoon the weather moderated so I got out with the rest. We had a brief session of the congress in the auditorium; but it was Ohio day, and the Ohio people are a little too demonstrative for any other meeting than their own to be much of a success, in even a *remote* corner of the auditorium.

In blundering around, by some means I found myself in the broad street of Midway. There was the Ferris wheel (or, at least, a smaller one), sure enough. I wanted to take a ride on it; but the way the wind made the people shiver warned me I had better look out. The managers of the fair assured the crowd that it was not cold a bit away up high in the sunshine; but the crowd did not seem to be very well convinced. There were, however, enough tough and hardy ones to keep the boxes pretty well filled. I was looking for some place where it was real warm, without so much regard to the wonderful *sights* or the *expense*. I noticed quite a crowd around one grotesque-looking Turkish building; and a voluble man was urging everybody to "come in and get a glimpse of a real Turkish harem. Come and see the oriental beauties in their native costumes, especially arranged to display their wonderful 'loviness.'" I don't suppose that is *just* what he said, but it comes near enough. I instantly grasped at the probability that these women would have to be kept warm, and here I should find a warmer apartment. Some gentle-faced women were urging their husbands not to go to see the wicked institution; and before I knew it I was pushed along in a crowd of—well, it seemed to me as if they might call them wicked *husbands*. Just as I was passing in, something seemed to say, "Look here, old fellow, how is it going to look if some of your bee-friends or some of your Florida acquaintances should say that they actually saw *A. I. R.* paying out his money to go in with a crowd of roughs to see a public display of the interior of a Turkish *harem?*" By that time, however, I had got inside. Well, the room was not warm at all; in fact, I rather think it was the frozen ground, just like that outside. The only women to be seen were photographs of statuary, and I should think the statuary was *very* cold at the time the photographs were taken. You look through a series of big magnifying-glasses to see them. A fellow near me, who had invested his money contrary to his wife's advice, looked through one of the lenses, uttered a vehement "Gosh! swindled again!" and pushed for the exit, without even deigning to notice the twenty or thirty other places to be looked into. I, however, took my time and went the rounds, and thought I would see how much there was so very bad, even in Midway. There was not any thing worse than you see in exhibitions of marble statuary in almost any of the fine-art buildings. The proprietors of Midway made capital by pretending they had something that was really wicked, when they hadn't. In other words, they made everybody believe they were going to see live women instead of just pictures of women in marble; and I don't know but this part of Midway is teaching *man*kind some wholesome lessons after all.

Yes, there was a veritable bull-fight advertised as going on all the time the very day I was there. It cost 50 cts. to see it; but if you looked carefully there was one line of fine print that said there would be absolutely no bloodshed, neither would anybody's life be endangered, even if the bulls *were* the wildest and fiercest that could be captured from the wild herds of the plains.

My teeth were chattering by this time, and I mixed in with a motley crowd that was trying to squeeze in around a bonfire made of pine boxes. When they got in, however, the fire was so hot they were in as much of a hurry to squeeze out again.

As it was getting toward night, I decided to go home on the electric cars that time, hoping they would be quicker if not warmer than the steam-cars. We had the same flapping curtains that might be beautiful during a warm day, but they did not fill the bill just that afternoon—at least to me. I longed for the radiator in my room at the hotel. When I stepped from the car it was night. I asked somebody to show me the shortest cut to Hotel Jackson. Three or four persons stopped and took pains to give me the fullest directions; and, by the way, I found this cheerful, ready spirit all through Atlanta. Everybody, almost everywhere, was ready to stop and look after a stranger, and show him all the courtesy he could ask for. When I was down in Mississippi I told you of a queer expression one hears. When some one points out a direction you are to take, instead of saying, "Go that way," as we do here in the North, he says, "Go that a way." In fact, the word "way" is so generally preceded by that queer little vowel *a*, that I

think I could almost tell a Southerner by simply asking him what direction I was to take!

Judging from past experience, and especially the way my throat was buzzing and humming, I expected to pass a sleepless night, and be down sick the next day. I stepped into a corner drugstore and told the clerk my predicament. He reached into a drawer, and gave me some throat lozenges without any sugar in their composition. I told him that I did not want any thing with sugar in it.

"Now," said he, "you can fix that throat of yours so you will sleep all night, by a counter-irritant. Bring that pain and soreness to the outside. That old remedy, Perry Davis' painkiller, will do it as well as any thing you can get. Take a good dose of it when you go to bed, according to directions, then rub it on your neck and throat and chest until it begins to take hold of the flesh and make it burn. This will relieve your throat. Take one of your big drinks of hot water before you go to bed; cover up warm; and in the morning, if you are all right, score one for Perry Davis."

The above is my version of what he said, and it succeeded so well I think I shall have to score one" right here for a chapter on doctoring *with* medicine. By the way, these counter-irritants are often of much value, and their action is as straight and sound sense, almost, as a surgical operation. Why, don't you know, boys, when a certain hive of bees is robbing some other one, if you disturb their hive and break down their honey you turn the current of mischief in a harmless direction? Give the robbers all they can attend to somewhere else. Well, this throat of mine seems to be the weak point in my system. A cold always takes hold and centers there first; and it was really only a very simple thing to drive it off with an external irritant instead of one that is internal. The former I did not mind; the latter prevents me from talking; and when you keep me from talking, you have pretty nearly boxed me up. I attended the convention all next day; and by keeping in a warm room I was pretty nearly as well as usual, and did my full share of talking. Now, here is another point: The druggist charged me only 20 cts. for that bottle of painkiller, and I have the most of it yet. Twenty cents for a good-sized bottle is a reasonable and fair price. It gives the manufacturer a big profit, where he puts it up by the wagonload or carload. Yes, 20 cts. not only pays a good profit, but it enables the manufacturer to put in a good corkscrew (one of those made by that automatic machine I told you about, probably), even at that price. One of the bee-friends (I think I will not tell which one) got his digestion out of rig by drinking Atlanta water. He did not have it boiled, and taken hot as I do. He was away from home, and a good deal troubled as to what to do, and asked me to advise him. He said he did not believe in taking brandy; but under the circumstances he did not know but he would have to do it, although he had taken hardly a bit in all his life. What do you *think* I advised him? Said I, "No, no! do not get any brandy, even if you *know* it will get you out of your present trouble. There are better medicines. Go to the drugstore and get some fluid extract of Jamaica ginger, and take it according to directions." He told me next day his trouble ended soon after the first dose. By the way, pure Jamaica ginger has a wonderful property of restoring a disordered stomach and bowels, many times. There is a kind of fluid extract that is made without any alcoholic liquors, and that is what you want to get. So there are at least two cheap simple medicines that I believe I can conscientiously recommend —painkiller and the ginger. By the way, I think this painkiller I have mentioned has been a staple medicine for fully fifty years. When I was a child it is almost the first thing I can recollect in the way of medicine that was boomed through all the newspapers until everybody knew the name of it.

SUB-IRRIGATION IN THE GREENHOUSE.

The above is the title of Bulletin 61, from our Ohio Experiment Station. I think I have never read *any* agricultural bulletin with so much interest, and so many times, as I have this one. Perhaps one reason is, the whole is entirely devoted to lettuce-growing, and especially the Grand Rapids lettuce, which it was my privilege to give to the world years ago One of the pleasantest things to me about these bulletins is the concluding summing-up in the back part; and when I can not go through a whole bulletin on various subjects, I oftentimes turn to the summary and read that. I am now going to give you the summary right here of Bulletin 61: and then if you want the whole you can get it by writing to the Ohio Experiment Station, Wooster, O.

SUMMARY.

1. A water-tight bench-bottom is necessary in sub-irrigation, and may be made of matched lumber, or of any rough lumber, the cracks being battened with lath, after which cement is spread over the bottom to the depth of half an inch. A better plan is to make the bench-bottom of tile, with iron supports. A bed may be made on the ground also.

2. The irrigating-tile may be laid lengthwise or crosswise the beds, and the latter plan has been the more satisfactory. If long runs of tile are used, there should be a slight fall of one or two inches to the hundred feet, and strips of tin should be inserted into the joints at intervals to check the too rapid flow of water to the lower end.

3. Sub-irrigation in the greenhouse grew out of an attempt to prevent lettuce-rot, by watering below so as to avoid wetting the foliage.

4. Watering by sub-irrigation is more efficiently and cheaply done than by the ordinary method; sub-irrigated soil does not harden, but retains its original loose, friable condition, nor does it become mossy and water-logged. Futhermore, plants are less liable to suffer from over-watering and disease by sub than by surface watering, and, in consequence, grow more vigorously.

5. These good effects are supposed to be largely due to the facts that sub-irrigated soil is always in a condition to allow the air to permeate it freely, and that uniformity and constancy of the supply of moisture to the roots are assured by this method of watering.

6. The gain in weight of sub-irrigated lettuce over surface-watered has been, in some cases, as high as 100 per cent; but in most of the experiments about 40 per cent. In one case the increase in the value of the crop was sufficient to pay the cost of the new bench-bottoms, and in all cases the cost of reconstruction has been reimbursed the first season.

7. It is a fact that good head lettuce can not be grown on heavy soil by surface watering, and the same is, in a measure, true of all varieties; but with sub-irrigation this kind of soil is not precluded, hence the method of watering greatly enlarges the possibilities of lettuce culture.

8. Local conditions should not be overlooked, such as soil and market requirements. It would be futile to attempt to follow Eastern methods in this section, because the conditions are different.

9. The head lettuces are grown in the East, but are not demanded in our markets, hence the Grand Rapids is more suitable here, as it can be grown more cheaply.

10. The practice in vogue in the East, of making

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beds on the ground, and of using a foot or more of soil, although the best plan there, is not necessarily so where sub-irrigation is practiced, as by this method six inches of soil is sufficient.

11. Lettuce flourishes best in the greenhouse from midwinter until spring, and is usually most in demand during that period; but late in spring it does better in beds out of doors, after which time the houses may be more profitably occupied with tomatoes.

12. The best plan of starting the small plants is in flats, and these are best watered by placing in shallow vats of water, so as to sub-irrigate.

13. The plants should be transplanted as soon as they show the second leaf, placing them 2x2 inches apart for Grand Rapids, and twice that distance for heading sorts; 6x7 inches for the former and 8x8 inches for the latter when planted in beds.

14. The plants should be kept growing from the start, but should not be forced in too high a temperature; 50 to 60 degrees by day and 40 to 50 by night being about right. A high temperature favors the development of lettuce-rot.

15. Ventilation is important or rot will appear. The most critical time is in cloudy, cold weather, because it is then not easy to ventilate.

16. No rule can be given for watering; but when sub-irrigated the soil should appear to be rather dry on top, and wet enough below so that, when pressed in the hand, it will not fall apart when released, but retain the shape given it by the hand.

17. The plants may be sprinkled once when set in the bed; but after that it is not necessary, and is a waste of time; nor is there any need of sprinkling the walks in order to introduce moisture into the air.

When the bed is full of thrifty-growing plants they will generally take up the water so readily that it will seldom do harm, even should you by mistake fill the bed with water to saturation. Prof. Green says he has never injured plants in that way; but, of course, they are careful not to give their sub-irrigated beds too much water. I have been experimenting for two or three years past; and I have about come to the conclusion that, *for real high-pressure gardening*, at least, to have it carried right along through intense drouth and drying winds, I want a water-tight bed so I can let the water in and fill it all up from one side to the other, and from one end to the other, even if the bed be 50 feet long. When you are prepared to do this you can smile at the drouth. Perhaps I should add, that, in making strawberry *cuttings*, we want a *cloth covering* to modify the intense glare of the sun's rays, and especially in the case of *cuttings* to keep the air over the plants moist as well as to keep the earth *beneath* them moist. With the water-tight bed and cotton sheeting above the plants, then we are independent of the greatest heat of summer; and by replacing the cotton with glass sashes, and having beds warmed by exhaust steam, sent through tiles, we are also independent of *zero freezes*.

To-day, Dec. 18, we have been very busy in introducing sub-irrigation into one of our fifty-foot beds that lies over the steam-pipe between our dwelling and the factory. It is the one I gave you a glimpse of in our issue for April 1, 1894, page 271, where I raised the strawberries, you remember. Last winter, during the exceedingly cold weather, they were obliged to send such a volume of steam over to the house that we had cooked strawberries grown in the open ground. In the center of the bed, right over the steam-pipes, it was too hot, while the outside edges of the bed were too cold; so we had frozen strawberries and baked strawberries almost side by side. Well, this new sub irrigation suggests a remedy. We have been having two or three beautiful days after our young winter; and I am improving the time by having the dirt all dug out of the bed, clear down to hardpan. The bed, you remember, is 6 feet wide and 50 feet long. When this was done, I put in some oak sills (2x3), running crosswise of the bed, about every 3 feet. On these oak sills were placed hemlock boards, 10 inches wide, leaving room between them to shrink and swell.

A few months ago a tin roof was to be replaced. The old one was going to be dumped off somewhere outdoors. I had it put in one of our spacious basements until it should be wanted; and when I read Bulletin 61, the old tin roof struck me as being just the thing for the bottom of my bed. Strips were cut from it 7½ feet wide, and as long as we could get them. This permitted turning up the sides, a little more than 6 inches high. These tin sides were tacked to the plank that supports the glass sashes. As the tin roof was old, there were some leaky places in it. To make it tight we covered it all with about half an inch of cement made of three parts of sand and one part of Akron cement, and two lines of tile were put the whole length of the bed, right along the bottom, each line 18 inches from the outside of the bed. This would make the two lines of tile just 3 feet apart, so that the water has to go only 18 inches through the joints of tile each way, to saturate the whole bed. The tiles were also laid in cement, the joints being cemented half way up. Before filling the bed with dirt it was all sifted to make it fine and loose, some fine manure being incorporated at the time the sifting was done. After the earth was put back in the bed, then we dug down on the outside until we struck the ends of the oak sills before mentioned. This allowed the heat from the center to work out each way along under the tin. Then an extra side-board was put along each outside, with a two inch space between the original plank composing the bed and the outer weather-board. This space permits the hot air from beneath the bed to pass out each way and up around the sides of the bed, protecting the sides from frost, and preventing the center of the bed from getting so much heat. The diagram below will help to make it plain:

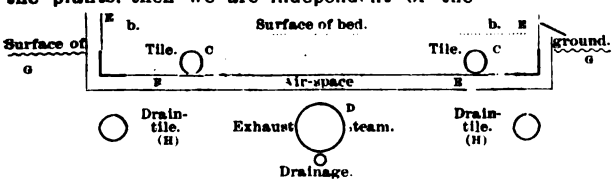


DIAGRAM OF A HOT-BED HEATED BY EXHAUST STEAM.

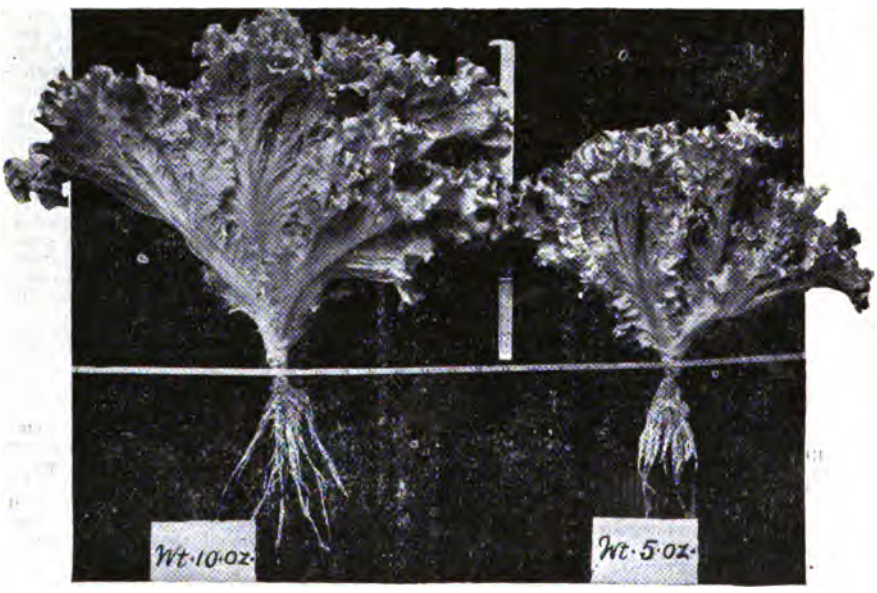
C C represents the sub-irrigation tiles resting on the tin bottom; E E the air-space under the tin bottom and up the sides of the bed. The sashes are supported on the edges of the inner bed E E, as shown in the diagram. When a heavy rain comes on the sashes, it would run down into the air-space E, on the south side. To prevent this we have fixed a strip of board just below the letter E, put on a bevel over toward the word "ground." The object of this board is to make a sort of eaves to run the rain water *outside* of the bed. In every arrangement of this kind there must be ample drainage. In fact, exhaust steam can not do its work if the large tile which conveys it should get flooded with water during excessive ice-cold rains in winter. To make sure this can not happen, we have a line of drain tile, H H. These, however, should be up high enough to be near the corners of the bed, as shown in the cut. Besides these, underneath the large tiles to carry the exhaust steam is another drainage tile. This also car-

ries away the drip from the condensed steam, and *must* have a good outlet. By the way, this drainage outlet will also be warmed up all its length by the hot water; and we have quite a pretty hot-bed near the evergreens warmed entirely by the hot drip water from the condensed steam.

My impression is, that all hot-beds heated by exhaust steam passed through tiles should have this sort of arrangement, or something equivalent, to prevent heating the center of the bed too much, also to prevent the sides of the bed from getting too cold; and I think any hot-bed or cold-frame would be greatly improved by double boarding, and having an air-space between the boards. With such an arrangement there would be much less need of extra covering, such as shutters or straw mats, over the sash during very severe weather.

Now, then, if you visit me in February or March I think I can show you some strawberries that are neither cooked nor frozen. Very likely it would be better, in arranging beds 6 feet wide, to be warmed by exhaust steam, to have *two* lines of tile to convey the steam. But even with this, I think there should be double walls. Why is not my arrangement sub-irrigation in the open air? It *is* sub-irrigation in the open air; but beds made on this principle must be covered with sashes during a very severe rain. If not, this tin-bottom water-tight hot-bed would get soaked full of water, and the plants would be all drowned. You may suggest that an arrangement should be made for letting off the water during a very wet time. Yes, we have done this; but when we put such quantities of valuable manure into a bed it does not pay to let the water run off so as to leach out the strength of the manure, much in the same way you would leach ashes in order to get lye.

By the kindness of Profs. W. J. and E. C. Green it is also my privilege to give you the best picture of Grand Rapids lettuce that ever appeared in print. The engraving above was taken from the above bulletin. The title under the cut fully explains what the picture is for. I wrote them that I considered Bulletin 61 worth its weight in gold to a lettuce-grower.



GROWN BY SUB-IRRIGATION. GROWN BY ORDINARY SURFACE WATERING.
GRAND RAPIDS LETTUCE.

THE CELERY MARKET.

All of the celery farms in our vicinity are sold out. Most of them disposed of their own crop some weeks before Christmas time. We were finally obliged to send to Cleveland to get celery for Christmas. Last evening, Dec. 24, a single box came by express. It cost 50 cts. per dozen roots, and the dozen weigh 5¼ lbs. With the enormous increase in acreage that has been put in every year in our locality, I have been thinking all along that the celery business would soon be overdone; but here it is, not yet Jan. 1, and very little celery is to be found at *any price;* and when you do get it it costs more than 4 cts. each for a single root; and these roots, when trimmed up, weigh on an average less than 8 oz. each. Hadn't you better get some celery seed and start it in a box in the window—that is, providing you have no better place? That bright little book, "Celery for Profit," by T. Greiner, is now in its fifth edition. The new edition is just out, and a big lot of the books are piled up on our counter. If you have any notion of raising celery, even a patch in your own garden, it will pay you to have the book. The price is only 25 cts., if sent with other goods, or 30 cts. if sent by mail.

We are now selling beautiful spinach — in fact, the finest I think I ever grew. It went through the freezes during the fore part of December without harm. We managed to have it just about as large as it could be without running up to seed, when winter set in; and during the very warm rains just before Christmas it has made a tremendous growth. We get 5 cts. for a 1-lb. package. We are also having quite a little trade in watercress grown in a *sub-irrigated* bed in the greenhouse. We get a nickel for a 2-oz. package. This package is put up in a little paper bag, just so the tops show above the paper. These bags of cress are then packed in a market-basket. Some of our customers, who used to be fond of watercress in their childhood

say that it just "hits the spot" at this season of the year better than any other vegetable. We are rather behind with our Grand Rapids lettuce; but a neighbor of ours who has a greenhouse has supplied us, and we both together have been having quite a brisk little trade on lettuce for Christmas.

NEW POTATOES BY CHRISTMAS.

You may remember I told you on page 819 that we planted some of Maule's Thoroughbred potatoes in the greenhouse, Oct. 22. The potatoes have been so recently dug that it took them some time to germinate. The first sprouts were noticed above the ground Nov. 11 (20 days later); and in our last issue I think I told you they were 6 in. high. Well, to-day (Christmas) I saw some of the largest stalks stood up over a foot high. A potato-plant, where it is entirely protected from insect-enemies, is very pretty. The leaves are very bright and glossy. With outdoor culture, where almost every leaf one can find is perforated by that mischievous flea-beetle, you rarely get a glimpse of potato-leaves as they should be. These in the greenhouse are perfect; and if you try some in a hot-bed or even in the window I think you will agree with me that they are a very handsome plant. Well, while I was admiring the foliage, especially the great stout stalks, and noticing their rapid growth, I saw the ground was a little bulged up and breaking open by one of those sturdy plants. Is it possible, thought I, that *potatoes* can be forming already? Then I pushed the dirt away with my finger. Sure enough, there was a beautiful white new potato, half the size of a hen's egg, and big enough to cook, I verily do believe. New potatoes in 65 days after planting, or 45 after they were up! So the experiment may be said to be settled, that rare and valuable varieties of potatoes can be grown under glass. We are making preparations to fill all our greenhouses and hot-beds. The potatoes will be planted to one eye, and only a foot apart; but this new potato ripens up so quickly that I think they will stand this close planting. New subscriptions have come in until the first barrel is about gone. At the present rate we shall give away all that are not used in planting on our own premises long before planting-time. When we get to putting them outside in hot-beds and cold-frames we shall use shutters over the glass, and cover up the space between the paths so as to keep out the frost.

MORE ABOUT MAULE'S NEW THOROUGHBRED POTATO.

From the *Practical Farmer* of Dec. 7 we take the following, by H. F. Smith:

About the middle of April last I received by mail from Wm. Henry Maule, seedsman, Philadelphia, a potato weighing about one-fourth of a pound. This was accompanied by the statement that, if I felt disposed, he would be pleased to have me test it, saying that it was a new one that came highly recommended, and that he thought of offering it to his customers next season. Whether he wished me to test it by eating or by planting he did not say; but as he said, "Label it No. 17," I concluded that he wished me to plant it; so I put it away with several samples I had stored for that purpose till it was time to plant. I have made such tests of new varieties with some of the best sorts I had on hand, every year for several years, for my own benefit, finding it a good way to determine the relative merits of the different varieties when raised under the same conditions of climate, soil, and cultivation. I plant and treat in the same manner that I do my general crop, so that I may know by the result just what I may expect them to do with me. I have found that new and improved varieties invariably yield the best, and also that there are comparatively few kinds that can be raised at a profit. To be profitable, the variety must have vigor to insure a good yield, and be of the best quality to command a sale. Unless it combines these qualities it should be discarded at once. The length of time required for it to mature, its shape, color, and keeping qualities must also be considered in fixing the value of a new variety.

May 10th, when my field was ready to plant I selected two rows together for my trial plat. Here I planted two tubers each of 54 different varieties; but having only one of No. 17 I divided it into 12 pieces having one eye each. These were dropped about 15 inches apart in the drill. I knew that this would be a severe test for any new variety, for I had several of the very best sorts with which it was to compete, but I wanted to know just what to expect of it hereafter. The trial plat was prepared and treated in all respects just the same as my general crop of Freeman, which yielded about 1200 bushels on five acres of land. During the season of growth I observed that the little red potato was holding its own, in appearance at least; and on August 23d, at which date I harvested the crop, the vines were ripe and dry. As I dug one kind after another, carefully weighing each and noting the result, some yielding thirty-fold, some sixty, and some a hundred, I hardly expected the unacclimated, nameless little stranger would equal the best. But as I counted the tubers from the 12 hills, large, smooth, and bright, 112 in number, I saw at once that I was handling something valuable; and when I placed them on the scales, and they tipped the beam at 31½ pounds, showing a yield of 126-fold, and at the rate of 733½ bushels per acre, I thought that surely no one would test them by eating one of them this year. I weighed them over again, then counted them again, and then weighed them in parcels. One weighed 17 ounces, and ten of them weighed 8¾ pounds. The yield on the whole plat was at the rate of 341½ bushels per acre. I at once decided that No. 17 was a well-bred potato, and if it is introduced next year I am sure it will make for itself everywhere a wonderful record. Mr. Maule has just informed me that he has named it "Thoroughbred," and it well deserves such a name. Since reporting the result of my test to Mr. Maule I have seen what Mr. Terry says in the *Practical Farmer* about his test of the same variety, and that it did nearly as well with him as it has done with me.

The editor of the *Practical Farmer* adds:

As Mr. Smith is the originator of the now celebrated Polaris potato, the above account is made doubly interesting, supplementing as it does Mr. Terry's remarkable experience with this new potato.

Permit me to add that the above test, and the one made by T. B. Terry, are, both of them, where this new potato was given just the same cultivation given the rest of the whole field; that is, they were not put in a very rich spot in the garden, and given extra care and attention, as is often or usually the case with a new variety. You will notice the whole plot in friend Smith's experiment gave 341½ bushels to the acre. This of itself would indicate that both variety and cultivation must have been a little more than ordinary; but this new comer, taking its chances with the rest, went up to the enormous yield of 733½ bushels per acre. Don't you think, my friends, you had better have at least a pound yourself, to experiment with? The probabilities are very strong that every potato raised of this variety next season will be worth a big price.

A POTATO REPORT, ETC.

We bought twenty eyes of Craig potatoes from Christian Weckesser, Niagara Falls, in April last. We planted them, and they all started but one. They grew nicely till hot dry weather came, when the tops seemed to blight some; but after a while they started out fresh and green, and grew till frost cut them down. We had 32 lbs. of good-sized potatoes. We also grow Freemans and Rural New-Yorker No. 2. The Freemans don't do well; they blight badly; still, I like them so well on the table that I guess we shall try them another year.

The Rural New-Yorker turned out splendidly, giving us 130 bushels of good large potatoes

from 64 rods of ground. Nearly every one says they were the best crop grown around here.

We have about a dozen hives of bees. There has been lots of foul brood around here; but when Mr. McEvoy, the inspector, was here he said ours were not bad, except three of them. We did as he told us to do, and hope when he comes back they will be found all right.

MRS. W. H. WESTCOTT.

Falkirk, Ont., Can., Dec. 23.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

The Thoroughbred potatoes over in the greenhouse are to-day, Dec. 31, over a foot high.

I now weigh 127 lbs.—only 3 lbs. short of my usual weight. My digestion is just perfect so long as I stick to lean meat and zwieback, and do not get in too large a ration of baked apples.

OUR LIST OF SEEDS FOR THE GARDEN, FARM, AND GREENHOUSE.

This was crowded out of this issue, but will, without doubt, appear in our next. If you send in an order we will give you the advantage of the reduced prices.

Homes and Neighbors also seemed crowded out of this issue, but I think the friends will find more or less of both scattered through my talks and travels.

THE FREE SAMPLE PACKAGE OF SANITARIUM HEALTH FOODS.

We have given away a hundred of these, and have just received another hundred for free distribution. The sample packages include one each of granose and granola, with directions for cooking; also a small package of caramel cereal, a substitute for coffee that is not a stimulant, but, on the contrary, aids digestion. These will be put in express orders or freight orders, entirely free of charge. Where wanted by mail, send 10 cts. for postage and packing. If you like the samples, you can order the articles with other articles when you are making orders here, or you can order direct from Battle Creek, Mich. As a rule it will not pay to order these things by express; neither will it pay to order them by freight unless neighbors club together so as to buy 30 or 40 lbs. or more in one purchase.

SEED POTATOES THAT HAVE BEEN FROSTED.

There has been considerable discussion as to whether potatoes would grow or not if they have been slightly frosted. The best way to settle it, especially if they are valuable, is to put them in a warm place, and see if they will sprout. The way we do it is to put them in a warm place in the greenhouse, say under one of the beds. Put the suspected potatoes close together, one layer deep. Sift over them some fine earth. If they commence to sprout, all right; but if they don't—why, they are worth something for manure, and they are right where you can shovel them up, dirt and all, any time you want some fertilizer. We have repeatedly raised some very fine potatoes where the seed seemed so soft that it was apparently good for nothing.

JAPANESE BUCKWHEAT FOR SEED.

With the large crops raised during the past year, we are able to give better figures than ever before; viz., trial packet, ¼ lb., by mail, 5 cts.; 1 lb. by mail, 15 cts; by freight or express, peck, 25 cts.; ½ bushel, 50 cts.; bushel, 80 cts.; two-bushel bag, $1.50; 10 or more bushels, purchaser paying for bags, 65 cts. per bushel. Please remember it does not pay as a rule to order buckwheat any distance by express, as the charges will be much more than the value of the seed. If you want only a small quantity, better have it by mail. Half a bushel or more can be sent safely by freight; but where the distance is very great, it had better be ordered with other goods, or even the freight may amount to more than the value of the buckwheat. Our eight-page buckwheat circular gives a vast amount of information in regard to buckwheat cultivation, and will be mailed free of charge on application.

SEED POTATOES BY MAIL.

We have special facilities for packing and mailing every thing of this sort; and this, perhaps, enables us to send potatoes for planting, by mail, cheaper than almost any other seedsman. If you compare our prices with those quoted in most of the seed catalogs you are now getting, you will see how reasonably we are willing to work for you. I believe that, as a rule, it pays better to send whole medium-sized potatoes by mail than to undertake to send eyes only, especially where they are to go long distances. We can furnish small potatoes whenever they are wanted. You will get more eyes in a pound of small potatoes, but they will not ordinarily make as strong growth. We will send 1 lb., postpaid, for 12 cts., of any of the following varieties: State of Maine; Beauty of Hebron; Rural New-Yorker No. 2; Monroe Seedling; Puritan; Early Ohio; Lee's Favorite.

For 15 cts. per lb., or 3 lbs. for 35 cts., we will send New Queen; Sir William; Freeman; Burpee's Extra Early; Livingston's Banner State.

For 20 cts. per lb., or 3 lbs. for 50 cts., we will send Carman No. 1 or New Craig.

Maule's Early Thoroughbred will be $1.50 per lb., or 3 lbs for $3.00; but any one who is now a subscriber to GLEANINGS may have 1 lb., postpaid by mail, as a premium for getting us one new subscriber, sending us, of course, $1.00 for the new subscriber. For particulars in regard to this last offer, see our potato circular.

SEED POTATOES BY THE BUSHEL FOR JAN. 1, 1896.

State of Maine, 25 cts. per bushel; Beauty of Hebron, 35 cts. per bushel; Rural New-Yorker No. 2 and Monroe Seedling, 40 cts. per bushel; Lee's Favorite, 60 cts. per bushel; New Queen, Freeman, Burpee's Extra Early, 75 cts. per bushel; Sir William, $1.00 per bushel. The above figures do not include package to ship in. Packages for shipping will cost as follows: Jute bags, holding 2 bushels, 10 cts. each. These are not suitable for cold weather. Better have them put in a barrel, for this will give room around the potatoes so as to put in paper and packing enough to make them pretty safe to go, even in cold weather. Price of a barrel holding 11 pecks, 25 cts. We ship choice seed potatoes more or less all winter long; and where they go toward the South we seldom have any losses unless a terrible freeze sets in such as we had during the latter part of last winter. I do not remember that we ever had any potatoes frozen when sent by express. But that is expensive work unless it is for some choice high-priced potatoes. If any of our friends wish us to undertake to ship them in winter, we will do our best to get them through safely. We can not, however, take all the responsibility of loss from freezing, as a rule, until after April 1.

For a full description of our seed potatoes, including prices on the new Craig, see our special potato circular, mailed free on application.

NEW AND VALUABLE RURAL BOOKS.

First we have a new edition of "Onion Raising," by Gregory. The chapter on keeping onions and onion-sets over winter by *freezing* has been worth to me much more than the price of the book. In fact, I had been drifting toward the plan for several years. It is, briefly, this: Place the onions on the barn floor to a depth of about 20 inches, having the heap at least two or three feet from the side of the building, the space being packed in with fine meadow hay, and putting twenty inches or more of hay or straw over them. It is well to have boards around the edge of the bed to keep the onions together. They must not be handled in the spring before the frost is entirely out, uncovering them in the spring gradually so as to let the frost come out slowly. A floor somewhat protected underneath would be better—say a floor over the stables. Put the sets in open crates, and let them freeze, and then cover them with 18 inches or 2 feet of hay or straw. Pack it all around them so well that they will not warm up and sprout out at every mild spell during winter, and just let them alone till time for planting. Don't put any blankets over them, nor any thing of that sort, for it will make them sweat and sprout. Briefly, freeze them up and then cover them so they will keep frozen all winter; and do not *suffocate* them and make them heat and sprout. The price of the book is 25 cts.; by mail, 30 cts.

CELERY FOR PROFIT.

This book I have mentioned in another column.

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The price is the same as the one above. The book is quite a little larger than the former one, and much more fully illustrated. I wish that those who get out 25-cent handbooks would try to give us "good measure" in the way of plenty of nice pictures, and a good number of good-sized pages.

"A BOOK ON SILAGE,"

by Prof. F. W. Woll, of Wisconsin, is a beautiful book of 192 pages and many fine illustrations. This is the most complete thing on the subject, I believe, that has ever been brought out. It not only tells all about silos of every shape and size conceivable, but it gives all the latest improvements up to the present day; and it discusses most fully the cultivation and harvesting and handling all of the various crops that are usually put into a silo. The price of the book is $1.00, in cloth, or 50 cts. in paper; but by special arrangements with the publishers we are enabled to offer it with GLEANINGS for $1.50, bound in cloth, or $1.25 if bound in paper. If you have already subscribed for GLEANINGS we will send you the book postpaid for 25 cts., and it will certainly pay you to invest this small sum, if you are going to do any thing with silage at all, or even if you would like to read up and be posted on this subject. Many of the illustrations are full-page, and so plain that almost any farmer should be able to go to work and make a silo, almost by looking at the pictures. The author is Assistant Professor of Agricultural Chemistry in the University of Wisconsin. This is a matter of special interest just now, since it has become evident that the silo has come to stay, and no mistake.

While we are about it, permit me to say that we have remaining on hand some thirty or forty copies of Prof. Cook's book, "Silo and Silage," second edition. These formerly sold for 25 cts. To close them out we will mail them for the small sum of 10 cts. each.

IRRIGATION FARMING.

Last, but not least, we have a brand-new book on irrigation; and it is written by a man (Lute Wilcox, Denver, Colorado) who has been practically engaged in the work almost all his life. It discusses every means for obtaining water which is before the world at the present day—making ponds and reservoirs, changing streams from their course, drilling wells, putting up windmills, using steam and gas engines, and even closes a chapter with the following pungent remarks in regard to locating wells by employing "water-witches:"

WATER WITCHERY. Ever since the writer can remember he has been conversant with the methods of certain men who claim to possess the occult power of locating a stratum or underflow of water by means of a forked stick, held in such a way that it is expected to dip at a point over the underlying waters as the operator passes along on the surface. This is called "water witchery," and is at best a very problematical practice, scarcely worth the time that one might devote to it, and certainly not always worth the fees that may be charged. The way to put a water-locator of this sort to a practical test is to place stakes at the points where his forked willow may show the downward tendency, indicative, as he will say, of the water underneath. Let several stakes be driven at different points. Then blindfold the water prospector, lead him around in a circle several times; and if his magic wand will repeat the dipping actions as before, and the two sets of stakes agree, some dependence may then be placed in the operation, but the test will be more apt to fail, and the deception will at once be apparent.

The book also discusses in detail not only all about growing crops by applications of water, but tells us exactly why we sometimes make a big success, and at other times why the water we give our plants does them more harm than good. There are so many bright sparkling truths scattered all through the book that I am going to make some extracts right here. I am sure they will be worth something to you, even if you never buy the book at all.

"Every crop tells when it wants water. . . . When corn wants water it tells the fact by its leaves being curled up in the morning."

"Nothing is so damaging to a growing crop as to leave the furrow or gutter in which the water has run, to bake and dry in the sun."

"One must introduce in the soil alternately much air and little water."

"Alfalfa is the greatest forage plant the world has ever known, and should be a special crop with every irrigation farmer."

"The writer once met a venerable padre of Old Mexico, who said his alfalfa patch had been planted over two hundred years, had never been re-seeded during that time, and had yielded four crops of hay regularly every year."

"There is a good deal of misapprehension afloat regarding this or that kind of soil being unsuited to alfalfa. . . . Any soil will do, so long as it has a porous substratum for proper drainage, and so that there is no accumulation of surface water to injure the crown and root of the plant."

There is one whole long chapter about alfalfa.

The above is from the O. Judd Co.; price $2.00. We will furnish it to our subscribers for $1.75, to be sent by freight or express with other goods; if by mail, add 8 cts. for postage. The book contains 312 pages and 95 engravings, and is fully up to the times. As it has been something like a dozen years since we have had any new book on this subject, I am sure it will meet a long felt want, and meet with a large sale.

HONEY MARKET.

We are still prepared to supply those in need of choice honey for their home trade. Choice alfalfa comb honey, in 24-lb. cases, 4-case lots or more, 15c per lb. Unfinished sections of the same honey, 3c per lb. less. Extracted alfalfa or California honey, in 60 lb. cans, 2 in case, 7½c per lb.; 2-case lot or more, 7c. Choice clover and basswood, ½c per lb. extra. We have also the alfalfa in one-gallon cans, 6 to the case, at $6.00 per case; 2 cases, $11.20; 5 cases, $27.00.

CATALOG FOR 1896.

Our catalog for 1896 is now in the press, and we will begin mailing it to our list of names within a few weeks. As we have a list of 75 to 100 thousand names to send it to, we may not get through the list before March. The readers of GLEANINGS, however, will receive one some time this month. There are very few changes from the last edition. Work on our catalog of miscellaneous goods is pretty well along, and we hope to have that out in a couple of months or less. We hope to have it done in time to mail along with our bee-supply catalog to most of the list.

CARLOAD SHIPMENTS.

We have just had with us for a few days Hon. Geo. E. Hilton, of Fremont, Mich., with whom we have made arrangements to manufacture the "Hilton Chaff Hive" and T supers for him. He left an order for a carload of miscellaneous goods to put in stock at Fremont, so as to be prepared to fill orders from there promptly. We are also loading this week a car for Baltimore, Maryland. Most of this consists of sections and frames for export to England, and about 14,000 lbs. to sort up the stock of Rawlings Implement Co., our agents for Maryland and Delaware. We expect shortly to send a car to McClure Bros., of Las Cruces, New Mexico, who expect to supply the bee-keepers of that section.

BRANCH OFFICES.

Besides the recently established Chicago branch for the sale of our line of bee-keepers' supplies to be conducted in the name of The A. I. Root Co., with Geo. W. York as manager, we have made arrangements to have our St. Paul, Minn., and Syracuse, N. Y., branches conducted in our name, and with the same efficient managers as have had them in charge heretofore. We have shipped a large carload to Syracuse during the past month, and are at work on a car for St. Paul, and which will be shipped very soon. H. G. Acklin, our manager there, seems to give satisfaction in his dealings, as is evidenced by the following which has just come to us, and to which we give place without consulting Mr. Acklin.

Mr. Root: — I should like to tell you that you couldn't get a better man as agent for your goods in St. Paul than Mr. Acklin is. I shipped wax to him. He wrote me the wax was so nice that he cuts 4 per cent off on the goods, besides paying me 2 cts. more per lb. cash for the rest of it. When I take the freight charges into consideration I saved at least $2.50 by shipping it to him instead of to Medina. I write this so you can see how well he satisfies his customers. L. F.

Carver, Minn.

The trade in St. Paul the past season was better than was anticipated, and, as a consequence, a number of things ran short, causing delay in some cases in filling orders, and some disappointment. We hope to overcome this by having an ample supply on hand for the coming season. Do not wait too long, however, but get your orders in early.

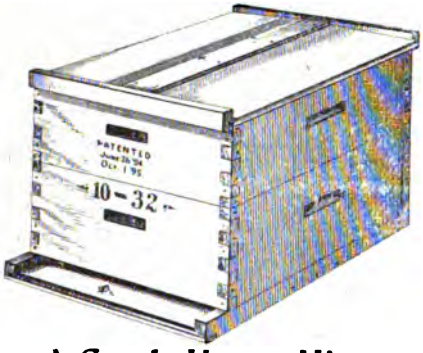
"The Southland Queen."

Send for a sample copy of The Southland Queen, $1.00 per year. The only bee-paper published in the South (monthly). Edited by the Atchley family. Practical, Plain, and Fresh. Also a Steam Bee-hive Factory. Root's Goods, Dadant's Foundation, and Bingham Smokers. Ask for free catalog. We will be ready with queens and bees by the pound for '96. Write for what you want, and make arrangments this winter while you are not busy.

The Jennie Atchley Co., Beeville, Tex.

TRY US. We sell your Poultry, Veals, Fruits and all produce at highest prices. DAILY RETURNS. For stencils, prices and references, write F. I. SAGE & SONS, 183 Reade St., N. Y.

Something New!



A Comb-Honey Hive

containing 10 closed-end standing brood-frames, 15½x6½ net comb space, and 32 5-inch Prize sections 3⅞x5 in.; adapted to furnish standard Langstroth hives as bodies or supers with full space for top packing for safe wintering and promoting work in supers; forming solid double walls with intervening air-spaces tightly covered, and perfect bee-escapes, with all free of cost; manufactured by The A. I. Root Co., and now being exhibited by the inventor at the Atlanta, Ga., Exposition, in the Dade Co., Florida, division in the Agricultural building. One complete sample hive ready for bees, $2.50; 10 complete in flat with nails, $15.00.

For present, address

F. DANZENBAKER, City P. O., Atlanta, Ga.

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BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

CHAS. ISRAEL & BROS.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

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LIBERAL ADVANCES MADE ON CONSIGNMENTS.

Potatoes.

Craig's Seedling, Everett's Early, and Freeman, at prices given by A. I. Root.

W. B. Collins, Blackwater, Cooper Co., Mo.

Root's Comb Foundation.

New Product, New Process, A Big Success.

We are pleased to announce that, having secured control of the new Weed process of manufacturing foundation for the U. S., we are prepared to furnish **Foundation by the New Process,** for 1896. Samples will be mailed free on application, and will speak for themselves.

Our Sanded and Polished Sections, well, they will speak for themselves also.

Our 1896 Catalog

will be ready for distribution now in a few days. Send in your name at once for catalog, samples of the new foundation, and those superb sections, and while you are about it ask for late copy of **Gleanings in Bee Culture.**

THE A. I. ROOT CO., Medina, O.

56 5th Avenue, Chicago, Ill.
1024 Mississippi St., St. Paul, Minn.
Syracuse, N. Y.

ROOT'S GOODS at ROOT'S PRICES FOR THE WEST.

Order of us and save freight. Goods at wholesale and retail. A full line of Dovetailed Hives, Sections, Foundation, Extractors, and every thing else of the latest and best.

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Italian Bees and Queens. Untested queens, $1.00; tested, $1.25. Bees by the pound, $1.00. Full colonies, $6.00; nuclei, 2-frames, with queen, $2.50; 1-frame, $2.00; queens after Aug., 50 cents. B. P. and W. P. R eggs for setting, 15 for $1.00.

MRS. A. A. SIMPSON, Swarts, Pa.

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

12tfdb **Sole Manufacturers,** Sprout Brook, Montgomery Co., N. Y.

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BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & LYON MFG. CO.,

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Please mention GLEANINGS. 21-8db

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Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other Hatcher. *Lowest priced first-class Hatcher made.* GEO. H. STAHL, 114 to 128 S. 6th St., Quincy, Ill.

Circulars free. Send 6c. for Illus. Catalogue.

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VOL. XXIV. JAN. 15. 1896. NO. 2.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA, OHIO.

Murray-Heist Cleveland O.

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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Department.
J. T. CALVERT, Business Manager.

Terms. $1.00 per annum; two years, $1.80; three years, $2.50; five years, $3.75, *in advance*; or two copies to one address, $1.50; three copies, $2.50; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

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Our Responsibility. Although we do not hold ourselves responsible for losses that may occur in deal with our advertisers, we take every precaution to admit only responsible men in our columns.

Rates of Advertising. These will be furnished on application.

Clubbing List.

We will send GLEANINGS with—

The American Bee Journal, weekly	($1.00)	$1.75
The Bee-Keepers' Review, monthly	(1.00)	1.75
American Bee-Keeper, monthly	(.50)	1.40
The Canadian Bee Journal, monthly	(1.00)	1.75
Progressive Bee-Keeper, monthly	(.50)	1.40
The British Bee Journal, weekly	(1.50)	2.00
All of the above journals		5.00

American Agriculturist, weekly	($1.00)	$1.90
American Gardening, weekly	(1.00)	1.75
Prairie Farmer, weekly	(1.00)	1.70
Rural New-Yorker, weekly	(1.00)	1.75
Farm Journal, monthly	(.50)	1.10
Agricultural Epitomist, monthly	(.50)	1.20
Scientific American, weekly	(3.00)	3.75
Ohio Farmer, weekly	(1.00)	1.75
Michigan Farmer, weekly	(1.00)	1.75
National Stockman & Farmer, weekly	(1.50)	2.10
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American Poultry Journal, monthly	(.50)	1.35
Poultry Topics, monthly	(.25)	1.45

[*Above rates include all postage in U. S. and Canada.*]

Hebblewhite & Co., George St., Sidney, New South Wales, H. L. Jones, Goodna, Queensland, and T. L. Chambers, Melbourne, Australia, will receive subscriptions for GLEANINGS at 6 shillings, postpaid, per annum.

Honey-Labels

Our facilities for doing all kinds of honey-label work in one or more colors are the best, and we can do it cheap. Send for our special label catalog of samples, free on application.

Circulars and Catalogs for Bee-keepers

is another one of our specialties. Having, as we do, the best of

Printing Facilities,

Skilled Workmen,

and an enormously large collection of cuts of bee-keepers' supplies, we are in a position to do you good work and cheap. Send for our prices and samples, free on application.

The A. I. Root Co., Medina, Ohio.

The A B C of Bee Culture.

62 Thousand Now Out.

A cyclopedia of every thing pertaining to the care of the honey-bee. By A. I. ROOT, with large additions by E. R. ROOT. This edition has been greatly revised and enlarged, so that it now contains nearly 475 double-column pages, octavo size, besides being beautifully illustrated by over 300 original engravings, many of them full page.

Prices: Neatly and strongly bound in cloth, by mail, $1.25; by express or freight with other goods, $1.10; or we will club it with Gleanings in Bee Culture for $2.00, postpaid.

The A. I. Root Co., Medina, Ohio.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

Vol. XXIV. JAN. 15, 1896. No. 2.

STRAY STRAWS FROM DR. C. C. MILLER.

THE ONTARIO B. K. A. gives a copy of *Canadian Bee Journal* free to each member. That's the way to do things.

THE EDITOR of *Canadian Bee Journal* thinks sweet clover may do damage by keeping the bees breeding too late.

DRY-WEATHER VINE has been mentioned by two or three as a great honey-plant. What other name has it? What's its botanical name?

MY BEES were cellared Nov. 13, and cellar-door left open. A week later, zero-weather closed the cellar; then it was open Dec. 17—25, and no fire was needed till Jan. 4.

HUTCHINSON says, "Many bee-keepers are beginning to realize that, for them, bee-keeping is not what it was once." "*Beginning?*" Humph!

THERE WERE 380 colonies of living bees on exhibition at the great German convention at Goerlitz. I didn't see that many at the World's Fair at Chicago.

THE AMERICAN BEE JOURNAL opens up the new year with new head-pieces for all its departments, and a new head-piece for the whole business. Looks right neat.

THE *Progressive Bee keeper* for January comes to hand looking very down-hearted—blue as indigo. But it's only the cover; inside it's chipper as you please, and full of good things.

SECTIONS have been kept two years without granulating, by putting in a common tin biscuit-box and gumming a strip of paper round the lid to exclude the air.—*J. T., in British Bee Journal.*

SOME GOOD WORK is being done in the two *Bee Journals*, American and Canadian, by way of showing up men who are of the sort for bee-keepers not to send money to. [GLEANINGS is showing 'em up too.—ED.]

SPECIALTY means happiness. It is the non-specialists who say, "What's life worth living for, if you can't have a little fun now and then?" The specialists have their fun all the time.—*F. L. Thompson, in American Bee Journal.*

MME. MODJESKA, the once famous actress, according to an item in the *British Bee Journal*, is now a California farmer with 760 colonies of bees on her ranch at the foot of the Santiago Peak. What's Rambler about? or is he keeping it all to himself?

MRS. AXTELL IS RIGHT, p. 18, that too many bees won't do in a small cellar; and she's also right that too few in a large cellar won't do if the cellar is too cold; but if the temperature is right I think I'd risk a single colony in a cellar measuring a mile each way.

MRS. ATCHLEY thinks I ought to mention who originally wrote the articles heretofore mentioned as copied from *American Bee Journal* in *Southland Queen*. The series of lessons first appeared in the *American Bee Journal* for 1894, signed Jennie Atchley.

THE BIG-LITTLE-HIVE discussion is smothered in GLEANINGS, but I shouldn't be surprised to see it break out again any time. Chas. Dadant is now giving little hives some heavy blows in the *American Bee Journal*. [It had better not open up right away, or I fear I'll get my ears warmed.—ED.]

REFERRING TO MY STATEMENT that Dzierzon tolerates frames with end-bars, only since the advent of the extractor, T. Greiner writes: "Are you aware that Dzierzon does not tolerate the frame in the *brood-chamber* up to this day?" There, you see how it is. When I think I do happen to know something, some one knocks it all over.

A. I. ROOT seems kind o' crazy over zwieback. We don't have whole-wheat bread at our house, but we're very fond of zwieback made of common bread. I wonder why zwieback of whole-wheat bread can't be made wholesale by the bakers. I'd like to send for a barrel of it. The common kind used to be sold in Chicago. They made it of stale or left-over bread.

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FOR FEEDING, H. R. Boardman says in *Review*, "Sugar and water in about equal parts thoroughly dissolved is all that is needed. Don't imagine that you can help the bees in their work of ripening the feed at any time by making it thicker. You'll only hinder." Shouldn't wonder if he's right. [I don't wonder, but feel pretty "sartin" he's right.—ED.]

"DRIVING" CUTS QUITE A FIGURE in the bee-talk and bee-shows of England. I doubt whether some of our younger bee-keepers know the meaning of the term. Queer that so many skeps remain in England. The editor of the *British Bee Journal* speaks of having taken part in "many hundreds of drivings." I don't believe he can be matched with another such editor on this side.

THAT NEW THEORY, that "uniformity of temperature is one of the prime causes of bees being put out in the spring in a weak and debilitated condition," conflicts somewhat with a statement of Doolittle in the *American Bee Journal*, that "evenness of temperature, and keeping it at about the desired point, is one of the great secrets of successful wintering in cellars." [But you don't say what *you* think about it.—ED.]

SKYLARK, p. 8, goes for me for copying S. S. Butler's plan of using old cans. Bless you, Skylark, I don't indorse what I clip, any more than GLEANINGS does in first publishing. Go for GLEANINGS! Say, Skylark, I've got something for you. 'Taint straws or stovewood either. But come around when the weather is warmer. Stones are all frozen down now. [I am glad they are frozen down, for I expect to take the train for Marengo to-night.—ED.]

AN EGG, when first laid, stands on end attached to the base of the cell. In a few minutes a nurse-bee lays it on its side. "On the second day we find the bees have shifted its position to an angle of about 35 degrees; on the third it is moved again to a horizontal position, and on the fourth day it hatches out."—*H. W. Brice*, in *British Bee Journal*. That differs from the performance I've seen given heretofore by British authority. How is it with our American bees, Bro. R. L.?

A FRIEND calls my attention to the 7th editorial on page 953, and seems to think something is wrong with the word "apiarian." I'm not authority as a "linguarian," but I think "apiarist" would do fully as well. [Langstroth (and who used the king's English more fluently and exactly than he?) invariably used the term "apiarian." But the new Standard Dictionary says "apiarian" is improperly used for "apiarist." The same book uses "apiary" as an adjective, and says Dr. Miller has charge of the "apiary terms."—ED.]

EXPERIMENTS reported in *Review*, by R. L. Taylor, show that 145° of heat melts honey, and that at 165° there is some change in the quality of the honey; above 165° rapid deterioration; the greater the heat, the more rapid the deterioration. Better hold 145° as the highest limit. [We have generally cautioned bee-keepers not to heat their candied honey over 180°, because some of the finest clover honey we ever had was that which had first been raised to a temperature of 180 degrees and no higher. If the honey is then sealed in glass it will remain liquid for a long time. Ours kept clear for two years. Mr. Taylor's experiment was with honey in the comb or unfinished sections from the season of 1894. This honey was raised to the various temperatures you mention, and samples at each temperature were taken for further comparison. Mr. T. says that raised to 145° and no higher was the best, and that the others were inferior, both in color and flavor. I am not surprised, because wax melts at 145; and when the temperature was raised to a higher point, some of its own flavor and color would be incorporated into the honey. I know this would be true, because extracted honey from chunk honey rendered in a solar wax-extractor is always darker and poorer in flavor than the same honey squeezed or extracted from the comb. I am sorry he did not take honey free from the comb. If this had been heated to the various temperatures I think 180° of heat would not have shown a deterioration. Boiling, I know, does affect its flavor. I sincerely hope he will try the experiment over again.—ED.]

COST OF STARTING IN BEE KEEPING IN CALIFORNIA.

If I differ with any of your correspondents, Mr. Editor, I give you fair notice that *they* must give up, for I can't. A *skylark* never surrenders. If he is overpowered and defeated, he blows himself up. I suppose it will come to this at last.

T. H. B., of Mercuse, Cal., asks Dr. Miller, in *American Bee Journal*, what it would cost him to start in bee-keeping with, say, 10 colonies, requesting him to itemize the articles. Dr. M. immediately sent him a bill of nearly a hundred dollars. The idea of his sending clear to Illinois, and *Skylark* right beside him—or nearly so! T. H. B., it is just good for you. I wish he had charged you two hundred dollars. Now, *you* might have known that Dr. M. "*don't*

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know" any thing about prices in California. I will, in pity for you, revise the "doctor's bill."

1 good bee-paper - - - - - -	$ 1 00
1 text book, - - - - - - - -	1 25
1 bee-veil, - - - - - - - -	50
1 Clark smoker, - - - - - -	60
10 colonies of bees, which you can buy in old rickety hives for 50 cts., -	5 00
10 movable-frame hives in flat, -	10 00
30 supers in flat, and separators, -	3 50
3000 sections, - - - - - -	10 50
30 lbs. surplus foundation, - -	15 00
Total,	$47 35

By the time you make up your hives and paint them your outfit will cost you about $50. Buy the common hybrid bee of California. They can beat the world of bees gathering honey. If there is any thing within ten miles of them they will have it or die in the attempt. Talk of your three and five banders; of your leather-colored Italians; of your bees for business. Nearly all are only names to catch the fancy of the unwary. Look at the piles of money made on "leather-colored Italians" by a noted bee-keeper whose star has gone down in a flood of adulterated honey, and it was all a humbug in the end. They were no better than other bees. Don't be caught with flaring advertisements, "bees for business," and "tons of honey," and other catch-penny terms. If you do you will come to grief. You can find, in the hills and woods of California, bees that can challenge the world as honey-gatherers. No man has bred any trait into them or out of them. They stand to-day—a cross of Italians and blacks — just as vigorous, industrious, healthy, and well marked, showing their Italian parentage, as they did 30 years ago. Sections here will cost you at least $3.50 per 1000 instead of $2.66 as Dr. M. puts them. I told you *he* didn't know any thing.

BEES NOT "GENEROUS" ROBBERS.

All the great lights in bee-keeping are away behind the age. Skylark, Quinby, Langstroth, Roots, Newman, Doolittle, Dadants, and a host of others—even Dr. Miller, who always "don't know," are in the darkest shades of night. The moment the little ducklings are out of the shell they begin to quack, quack, quack, and order their mother around as if she were the servant-girl. The moment the tenderfoot in bee-keeping gets two colonies, or captures one in the woods, he must quack, quack, quack, and teach the "old stagers" some new trait or trick of the bees which they never heard of before.

Mr. J. H. Andre, on page 697, *American Bee Journal*, makes the astounding assertion that, where bees from two different colonies are robbing the same piece of comb, say it is thrown out to them, one party will retire, and leave the other in possession of the prize. This is so new that it is really startling, and calculated to alarm the whole fraternity, from the fact that it indicates a total change in the nature of bees. No one has ever seen bees act in so generous a manner, and no one will believe what his own eyes refute every day. The fact is, they will "fight to the finish," even if there are a hundred colonies within reach of that piece of comb. How does he know this? By the size and shape of the bees! Hear him!

"Returning on the line to where the bees were first worked in the woods (and a filled comb had been left to keep the line working in case the bees failed to come to the comb further on), I made an examination of the bees, and found them all of one size and shape, which every one who has knowledge of bees knows that it proves they belonged to the same colony."

Shades of Quinby, Langstroth, and Darwin! Did any one, outside of an asylum, ever hear the like of that? Now, I will furnish friend Andre with a microscope, spy-glass, telescope, hatchet, square, and an 80 foot tape-line, and turn him loose in any apiary where there is only one race of bees, and defy him to show there is any perceptible difference in size or shape of the full-grown worker-bees.

MARKETING CALIFORNIA HONEY: PRACTICAL AND IMPRACTICAL SCHEMES.

W. D. French, of Foster, Cal., has given us some wild suggestions, on page 728, *American Bee Journal*, in regard to marketing our honey. It is true that the dealers combine and set a price to be paid for each kind and class of honey. It is likewise true that this price declines daily until it gets down to the shadow of little or nothing. If we ship to San Francisco, say extracted, the merchants may sell at 6 cents, and, after weeks of waiting, report at 4, or down as low as 3½ cents. Then there is freight, wharfage, drayage, and commission, which generally amount to about 1 cent per pound. Take off the cost of cases and cans, and the producer gets 1¾ cents net for his honey. But, listen hard to Mr. French's scheme:

"Now, how are we to solve this problem by securing to the producing class an adequate amount for their product? It has occurred to me that the National Bee-keepers' Union could step in and show its hand. To illustrate:

"Suppose that in each locality a number of the Union members were stationed to receive all honey at a price established by said Union, and paid for when sold, except in cases where people must have ready cash, and where it became necessary in such cases, the same to be paid from the funds of the Union."

Does Mr. French believe that the Bee-keepers' Union is either able or willing to enter into such a commercial enterprise? It would have to establish depots or warehouses at San Diego, Los Angeles, Santa Barbara, San Louis Obispo, Monterey, and San Francisco. It would take a capital of half a million dollars to keep money at all these places to pay those who *must* have

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money. They would—nine out of ten—all feel that they *must* have the money for their crop. The Union would have to handle that honey pretty lively, too, to keep up their supply of funds.

Here is a plan by Prof. A. J. Cook, taken from the *Rural Californian*, which is the only one that I believe will ever ripen into a honey exchange in the East:

"A third plan promises the least friction and greatest assurance of success, which, if successful, will soon lead to the adoption of the plan last mentioned, as it will prove to the doubtful that co-operation is feasible and has practical merit. This plan is suggested by the experience of some bee-keepers, notably H. E. Wilder, of Riverside, who, two years ago, took his large honey crop east and disposed of it at a good figure. The plan is to send some man like Mr. Wilder, in whom the bee-keepers have confidence, east with a carload of honey, to be followed by other carloads as he gives orders. If desired, this person could give bonds equal to one or two carloads of honey, and he would remit as rapidly as sales were made. Only those who had confidence in this scheme need join the enterprise; and if the success which is hoped attends the scheme, others would join another year; and as nothing succeeds like success we might well hope and expect that this plan would soon ripen into a honey exchange which would sweep into its embrace all, or substantially all, the apiaries of Southern California. It seems that this plan has much to recommend it, and no insuperable difficulty in the way of its accomplishment. It is to be hoped that this plan may be tried this season. There is no better place for it to materialize than in San Bernardino, Riverside, and Los Angeles Counties, as in no section of the world are there more enterprising, intelligent apiarists. In the hands of honest, pushing, wide-awake men, such a scheme may do much to bring immediate benefit, and be more fruitful of good in opening the door to the grand scheme of co-operation that shall reach, with blessing, to all the honey-producers of Southern California."

This plan is feasible, and promises success. Besides, it was originated by the greatest mind in the United States—interested in bee-keeping—except my own. The only thing that grieves me is that it is impossible for me to take charge of the business before 1897, and they (the bee-keepers) will be compelled to put up with a less capable man till I can get ready to accept the situation.

[See Prof. Cook's article in previous issue.—ED.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

EUROPEAN AND OTHER MATTERS.

AN EXPEDITIOUS WAY OF USING THE BEE-ESCAPE.

By Charles Norman.

A Mr. Sallemand (*Revue*) discovered quite an expeditious way of using the bee-escape preparatory to extracting. "The idea occurred to me not to leave the escape in the hive. I lifted the case rapidly, set it on the escape-board, closed the hive quickly, and carried the case away about thirty meters (40 yards) from the apiary, under the shade of a small arbor. I put a few blocks under the case to have the lower side of the board free, and then turned to some other business. After about an hour I returned, and not a bee was to be found in the case." In other instances the result was always the same. Well, this is splendid, so far as it goes. But how is it when you don't want to empty a whole case or story of its bees, if it has the single frames, rather, that come in question? As I was not at home last May and June, when extracting had to be done at my place, I told my oldest son, Hugo, to try the thing—to procure an empty hive with a conical bee-escape (*a la* Boardman, made of wire netting); to fill it with the bee-covered honey-frames, regardless of the colonies which he would take them from, being careful lest they quarrel (which, however, I did not expect in the least); and, finally, to carry the hive off to some distance under the shade of an orange-tree. The youngster, who has notions of his own, only partially obeyed orders and tried to improve on what "the old man" had told him. My hives, fronting the outside, stand below a pretty long and wide palmetto roof; in fact, you may call the whole a bee-house, except that the four sides are open. By the way, this is not only a good deal cooler than having them in the shade of our trees (quite a consideration in the South), but you can work with your bees when it rains. When my son put the frames in the empty hive the latter was near at hand, just in the passageway between the hive-rows, and here he let it stand, saving himself the trouble of carrying it away. He closed the entrance of the hive, leaving just an opening in its middle, and here he set a little box on which he had attached the escape. Then he placed the cover on top of the hive; but before closing it tight he gave the bees some smoke "to make it disagreeable for them in there." Well, the thing worked like a charm, and it took much less than an hour to have the hive empty of bees, and the frames ready for the extractor.

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SQUARE FRAMES, AND WHY.

Regarding the dimensions and size of frames I indorse every word Mr. Boardman has said, whose frames are 13x13 inches inside. Shielded by Boardman I dare speak out and let "Doolittle and the giants" come on, without much fear. But there is one reason of which Mr. Boardman, who uses upper stories, could not have thought, but which has influenced me, and it is the following. I, like *some* others, Mr. Poppleton among them, am in favor of the Long-idea hive. I raise only extracted honey, and find said hive very handy for *this* purpose at all events! But how, if I felt like raising honey in one-pound sections (what would have to be done in wide frames back of the brood-nest)? It being granted that the 4¼x4¼ section is the standard, of what size *must* a wide frame be to hold them and at the same time be neither too light nor too heavy? It must measure 13x13, or, perhaps, better, 12⅞x12⅞ inches inside to contain three rows of three sections each, or nine sections all together. If the bee-keeper, though, does not mind handling a heavy frame, and if, at the same time, he does not care to have a square frame, frames that measure 12⅞x17⅛ inches inside, containing twelve 1-pound sections, have some advantages.

All, or, say, most readers of GLEANINGS know what the so-called Wells system consists in; namely, having one common honey storeroom for two separate colonies, so that, like true brethren (sisters, rather), or coöperators, or Bellamy socialists, they throw their earnings together. There are not a few bee-keepers in England, France, Switzerland, Germany, who are well pleased with this kind of combination. Is it not strange, and (I beg your pardon, dear reader) a sign of the narrowness of the human mind, that, till just lately, none of these bee-keepers ever thought of extending the principle which underlies the Wells system, and to ask how it would do to have more than two colonies, yes, to have a whole apiary work together? Well, according to *L'Apiculteur*, a Catholic priest in France, Pere Julien, has conceived the idea at last, and, what is more, has put it into practice and successful operation. The number of his hives and the construction of the whole is not given. The idea is not patented and so any of your readers are free to experiment "along this line" as Mr. Doolittle used to say. Old! for on page 899 of GLEANINGS, I, to my utmost astonishment, noticed that Mr. Doolittle speaks of experimenting "in the direction of," etc. Has he become tired of his favorite expression? or does he "put on style" (it is against good style, you know, to unnecessarily repeat the same word or expression).

BEE-STINGS AND RHEUMATISM.

A French bee-keeper, Mr. Huillon, was suffering from muscular rheumatism, which traveled from one part of a leg to another, and, after having stayed there for some time, took a notion to pay a little friendly visit to the other leg, so that the poor gentleman had to go lame, now on this, now on that leg. In vain he tried many remedies till at last he thought of "our pets" one day. He repaired to his apiary, took a bee by the wings and held it against the place where he suffered. The "pet" worked conscientiously, and he allowed it sufficient time to liberate itself of whatever "poison" it possessed. He then set two more bees at the same work. Soon an intense heat spread on and about the affected part, but all pain was gone. He triumphed. The following morning, however, when he awoke he noticed that Sir Rheumatism had been mean enough to take possession of another part of the leg. Quickly he directed his going-lame-on-one-leg steps to the apiary, and again called for the help of three "pets." Result, the same as on the preceding day. For three more days he pursued the enemy in like manner, when he was entirely delivered from it.

The *Revue* says, "The highest altitude above the level of the sea where an apiary is located in Europe is at Saas-fée (Valais); altitude, 1800 meters, or about 2000 feet; owner, Benjamin Imseng; last crop, 300 kilograms (about 660 lbs.) of honey from 20 colonies.

THE BEEF-DIET TREATMENT.

The Salisbury treatment, which you have been recommending in GLEANINGS of late, is it not, however effective, somewhat one-sided? It seems to be all right for "meat-eaters," in the widest sense of the word; but when one is adverse to eating the flesh of warm-blooded animals, will not fish do? And when one, like so many, is opposed to eating flesh of any kind, will not eggs answer? On page 905 *you* merely say, "*I presume* that they would not answer for a steady diet." Or would not milk be all right, especially when prepared according to Dr. Alice Stockham's prescription (GLEANINGS, 1893, page 481), when it does not curdle or coagulate, and is conveyed directly to the blood, and can be drank by very weak persons, with impunity? Moreover, if one is a *strict* vegetarian, and shuns eating or drinking any thing that comes from an animal, is science not advanced enough to show up some vegetable product that will do as well as lean beef? Mr. A. I. R. has lately told us of his visit at the Battle Creek Sanitarium, where they live on a strictly vegetarian diet, and of their prepared health-foods. Should not the doctors there be able to point out a food, or combination of foods, which as to chemical composition as well as to digestibility are equal to lean beef? In respect to drinking hot water, is it not a little one-sided too, not to allow an admixture of any kind? Would it not answer to render the liquid more palatable by the addition of fennel,

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anise, or some other innocent herb? also of some honey, as even your Battle Creek doctors admit that the same can be used with impunity where sugar would be almost fatal (GLEANINGS, Nov. 1, page 821)?

BICYCLE-RIDING—DANGER OF.

You, as well as A. I. R., have been, and, no doubt, still are, very enthusiastic concerning bicycle-riding. There are—it is a fact—many persons who go through thick and thin with GLEANINGS, especially when Mr. A. I. takes the lead and runs ahead of the crowd or crew with his juvenile liveliness and cheerfulness, and you have certainly influenced not a few "along the bicycle line." Since I do not remember that you ever cautioned the people against the dangers of bicycle-riding, I clip the following for GLEANINGS:

TAKE IT EASY.

"A French doctor's conclusion is, that no one should ride a bicycle who has a tendency to excessive tension of the arterial system, for this tendency is a great cause of heart disease. Therefore, no one should take up the use of the wheel without the express authorization of a physician; and the doctor should make an examination, not only before the patient begins the use of the wheel, but after he has ridden it for a time. Moreover, the amateur should never ride at a high rate of speed. If one's riding is regular and daily, one may go faster and further with safety; but if riding is interrupted, even for a few days, one must take it up again with caution and deliberation. The temptation to go fast should be steadily resisted."

Would it not be a strange coincidence if you, Mr. E. R., had caused, or, at any rate, promoted, that bad state of health in which you have been for some time, by overdoing bicycle-riding? And last, but not least, Dr. Forbes Winslow, a well-known English physician, of London, has very decidedly and sharply spoken out against the bicycle-riding of women and girls. He says: "Bicycle-riding is too rapid a motion for the bodily constitution of women, and leads to abnormal appetites and desires." He firmly asserts that for this very reason moral corruption is on the increase. He also maintains that bicycle-riding promotes abdominal diseases of women, and thereby badly affects the health of the coming generations.

St. Petersburg, Fla.

[There are no substitutes for beef in the vegetable kingdom. Fish will answer after the patient has been on the treatment for a while. Much depends on how "far gone" the subject is in the first place. Eggs, soft boiled, are allowed in some cases.

As to bicycle-riding, of course it can be carried to excess. Did I do it? No, I don't think I did. I never felt better in my life after those long runs of a year ago. I was strong and well, and much improved; but late in the fall of that year my old "la grippe" came back, and then quickly followed all my other old ailments until I got clear down. I went on to the vegetarian diet, and grew gradually worse; and then, and only then, I followed the advice of my wife—something I ought to have done before—and took the Salisbury beef-diet treatment, and to-day I am almost a well man, and stronger and better than I have been for years.

Yes, I know there are a few physicians who claim that the use of the bicycle is injurious to women; and while it may prove to be so in a few cases, I know there are many other physicians who think differently. I never knew of a case where it did any harm, and I have known many who received a positive benefit.—ED.]

EXPLANATION.

HAS THE NORTH AMERICAN BEEN A "SORT OF DEESTRIC SCHOOL" FOR BEGINNERS?

By Rev. W. F. Clarke.

On page 845 of GLEANINGS, Dr. Miller expresses a wish to have me explain what I meant by saying that the North American has always been "a primary class of bee-keepers." Begging the doctor's pardon, that was not what I said, exactly. It was, that the association "has been *for the most part* a mere school for beginners, and there has always been a strongly marked dislike of thoughtful papers and really able discussions." Again, "Instead of a select gathering of advanced bee-keepers, who could discuss vexed and knotty questions in apiculture, we have held a sort of 'deestric school' for those who would show plainly that they had never read a book on bee-keeping in their lives, and know nothing in regard to disputed points in the higher realms of apiculture." I think these quotations make my meaning sufficiently plain. My idea was and is, that at a representative bee-keepers' meeting we have a right to look for what we don't get in manuals of bee culture; namely, a face-to-face discussion of live questions that have arisen in the practical part of our pursuit. Owing to the preponderance of local bee-keepers, many of whom are not very well up in the business, our time has been occupied in explaining to tyros what even beginners in bee-keeping may be very properly supposed to be familiar with.

There is another matter on which the doctor brings me to book. He says, "At Toronto, Mr. Clarke said of the North American, 'When we get down so that we have to pay only 25 cents a year, I don't want to belong to it.' Why? I think both Mr. Clarke and myself have got down so that we don't have to pay even 25 cents a year. Is that any reason we do not want to belong to it?" I thought "Honorary Membership" was a getting up in the world. But I was discussing the proposition to try to increase the membership of the National Bee-keepers' Union by reducing the fee from $1.00 to 25 cents. The Union has never had any honorary members. My idea was and

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is, that, to reduce the fee to so low a figure, would rather tend to diminish than increase the number of members by making a mean, beggarly affair of it. People would naturally reason that it can not be worth much if it is rated at so small a price. I should not care to be even an honorary member of a twenty-five-cent organization. I do not believe in the "cheap John" style of doing business. I think a fair price must be paid for any thing really worth having.

Guelph, Ont., Nov. 29.

BEE-KEEPERS AT FARMERS' INSTITUTES.

AN INTERESTING TALK FOR BEGINNERS.

By H. R. Boardman.

The farmers' institute has from time to time been mentioned as a very proper place and opportunity for the live bee-keeper to entertain and enlighten his neighbors with bee-talk. I was placed upon the program at our institute meeting here last winter for such a talk. Now, to talk to an audience of bee-keepers is one thing, and to an audience like that of the institute meeting, where the interest is centered upon any thing and every thing excepting bees, about which they know nothing, is quite another. It is to the speaker something like talking to a class of children. I was severely puzzled to decide what I should say in order to secure the attention of my audience.

This is about what I said:

The bee-hive, to the masses of mankind, is a deep mystery, a sealed book; and there are clinging about it the cobwebs of superstition that the light of civilization has not yet cleared away. But it is encouraging to know that the wheels of progress are moving rapidly forward, and the mysteries and superstitions of darkness are being dispelled by the light of intelligence and reason.

There are from 15,000 to 40,000 bees in a colony, varying with the season of the year. There are three kinds of bees in each colony—the workers, the drones, and the queens. The workers do all of the work in the hive, gather the honey and pollen, supply the hive with water, elaborate the wax, build the combs, prepare the food, feed and care for the young bees, do the general housework, attend to politics, declare war, defend the hive against intrusion or invasion, ventilate the hive, evaporate the honey, guard and protect the queen, etc. They are active, industrious, energetic, untiring hustlers, jealous of their rights, and are easily offended. In defense of their hives they exhibit a patriotism unparalleled in the world. They will, on the slightest provocation, sacrifice their lives without the slightest hesitation. They all bear arms, and carry their weapons concealed. The motto of their government is, "The greatest good to the greatest number." They have no hospitals for the sick or maimed. When they have outlived their usefulness they are dragged out of the hive, without waste of sympathy or sentiment.

Robbing and freebooting are common among them, and carried on with a persistence worthy of a nobler cause.

In sex the workers are females undeveloped, and sometimes called neuters.

In their work they are divided into classes according to the capability of age. The young bees are nurses, and do the general housework, remaining in the hive until they are 10 to 14 days old, when they are graduated to field-laborers, and other duties in regular order of their age. The old bees will act as nurses and housekeepers, only in absence of young bees in the hive. "Old bees for counsel, and young bees for war," is a maxim they haven't caught on to. The age of the workers is from 35 days, during the activity of summer, to 6 months or more during the fall and winter, when they remain in an inactive dormant condition, sometimes called their winter sleep.

THE DRONES.

The drones are the males. They do no work. Some think that they were created expressly for an object-lesson to caricature certain members of the human family who spend the sunshine of life waiting for "something to turn up." I consider this a base libel (on the bees). Since I have come to know these clumsy, good-natured, harmless fellows, my sympathies have been enlisted in their behalf. Nature did not intend that they should take part in the work of the hive. They were not provided with a honey-sac for carrying honey, nor a tongue for gathering it. They have no wax-pockets nor pollen-baskets, and they are not allowed to carry weapons, even in self-defense; so they very prudently keep out of the way, and let the women-folks do the work and defend the hive. They appear in a normal colony only during its prosperity in the summer season. Their presence in the hive denotes preparations for swarming. They are mercilessly slaughtered or driven from home by the workers at any time when the honey-yield becomes meager, simply as a measure of economy, or at the close of the season when they have outlived their usefulness. It is difficult to dermine how long they might live if their lives were not beset with so many uncertainties—probably about as long as the workers.

THE QUEEN.

The queen is the mother of the entire colony, and is the only perfect female among its teeming thousands. She has no royal prerogative, as usually attributed to her. She does not sit upon a throne, nor does she rule or govern in any sense. She does not lead out the swarms when they issue; on the contrary, the swarms invariably lead her. Mother is her prerogative in the hive, rather than queen. Her importance in the hive is recognized by the workers, and she is carefully fed and watched and guarded in all her movements.

Queens vary as much as as do hens in their laying proclivities; and the prosperity of the colony depends very much upon the queen in this respect. A poor queen will surely result in an unprofitable or worthless colony; and the bee-keeper who is looking after his best interests will supersede such queens with those more valuable. A good queen may lay 2000 to 3000 eggs daily; and there is some very good authority for a larger number at times. But this is not much of an egg-record either. The queen of the termites, or white ants, comes forward with a record of 80,000 as a day's work, and vouched for by good authority. But she devotes her entire attention to the egg-business.

The queen is provided with a sting, which she uses only to destroy rival queens.

The eggs laid in the combs by the mother-bee are hatched into a wormlike larva, in three days. It feeds voraciously, and grows rapidly upon pabulum furnished by the nurse bees, composed of honey and pollen. After feeding 5 days if a worker, or 6½ if a drone, the cells are sealed over; the embryo bee spins a silken cocoon about itself with ingenuity that surpasses human conception, and subsides into a dormant state which is called the pupa or imago state. This is followed by the transformation to the perfect state, which requires 21 days from the egg for workers, 24 for the drones, and 16 for the queens.

When the queen is about six days old she will come out of the hive and take a flight, attended by a retinue of drones. This is the occasion of her wedding-tour. In two or three days she will commence laying, and never leave the hive afterward except to accompany a swarm. Her fertility lasts to the end of life, which is usually three or four years. Virgin queens sometimes lay eggs, and they will hatch, but produce only drones. Drones are all produced from unfertilized eggs. This is one of the wonders of nature, and may be somewhat astonishing to some, but it is nevertheless true. If from any cause the queen is lost from the colony the bees set about rearing another, which they do from a common worker-egg or larva, by building around it a large thick cell, and feeding a superabundance of the same kind of pabulum, apparently, as that fed in smaller quantities to the other

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larvæ. Why or how this results in a queen, so different in character from the rest of the bees, has never been learned.

Several queen-cells are built at the same time, as if to provide against possible failure. The first queen hatched kills the others, usually by biting open the cells and stinging them, unless swarming is contemplated, in which case the bees cluster tightly over the cells and prevent their destruction. One queen in a colony is the rule. They are very jealous of their rights, and settle the question of supremacy in mortal combat when more than one queen appears in the hive.

THE PRODUCTS OF THE HIVE.

Besides honey and wax there are two other products —pollen and propolis—making four distinct products of the hive. Honey is the principal food of the bees, and is nectar gathered from the flowers, and sweets from various other sources, which is licked or sucked up with the tongue, and conveyed to the honey-sac, and carried to the hive and delivered to the nurse bees, who dispose of it in the combs, where it remains unsealed until it goes through a process of evaporation or ripening. When satisfied with its condition the bees seal it over and it becomes the finished product. It requires, on an average, about 20,000 bees to carry 1 lb. of nectar from the field to the hive. When nectar is abundant in the flowers the bees gather and store it with astonishing rapidity, and usually accumulate a surplus—that is, more than they can use—which constitutes the reasonable share of the bee-keeper. The bees that gather and store the honey with so much care and labor do not live to enjoy it, but it is consumed by their posterity of the following season. It is used largely in brood-rearing at the beginning of the season in the spring. How faithfully this animal instinct is portrayed in the human family!

WAX.

Wax is the material from which the combs are built. It is not gathered by the bees, but is elaborated or secreted in the wax-pockets on the under side of the body, and extruded in little thin white pellets, or scales, from between the segments, or rings, from whence it is taken and wrought in a most wonderful manner into combs. The secretion of wax by the bees is somewhat analogous to the secretion of fat by animals. It is only during the season of honey-gathering, when the bees are continually gorged, that wax is secreted. Only when combs are needed does nature furnish the material from which to build them. The same results may be obtained by liberal feeding. Combs serve the purpose of storage for honey, and for cradles for the infant bees. There are two sizes of cells, apparently made to fit the two kinds of bees. The workers are raised in the small cells, and the drones in the large ones. The large cells are invariably built where only storage combs are needed. Note the economy!

POLLEN.

This is the farina, or fertilizing dust, of flowers. It is gathered and stored in the combs by the bees, in considerable quantity. It is known also as bee-bread. It is gathered in little pellets, and carried on their posterior legs, on the outside of which nature has provided a place most wonderfully adapted to this purpose. The bees kick these little pellets off into the cells of the comb, and the young bees pack them in with their heads. They will gather flour, and various other substitutes for pollen, in an emergency. It is intensely interesting to watch the process of gathering the pollen, and the packing of it upon the pollen-baskets. Honey and pollen, in a partially digested state, constitute the pabulum upon which the larva is fed, and is absolutely necessary for brood-rearing.

The gathering of both honey and pollen has another phase that is very interesting as well as important. It is the fertilization of the flowers by the bees by the carrying of the pollen-dust from one flower to another. The flowers are robbed of their sweets only to be enriched.

PROPOLIS, OR BEE-GLUE.

This is a resinous substance which the bees gather upon their legs in the same way that they do pollen, and is used by them to seal up cracks, and cover rough places in the hive, and to strengthen the combs. When gathered it is soft and pliable, but hardens with age.

Note.—My efforts were rewarded by the best of attention, and many flattering compliments were paid me at the conclusion of this talk.

East Townsend, O.

[Perhaps the foregoing address may seem a little elementary for a bee-journal; but we have a list of beginners among our subscribers who, I know, will be glad to read this, especially as it comes from one of our brightest and most successful bee-keepers. What Mr. B. has said, I know comes from solid experience, with a very little that he perhaps may have picked from the general apicultural literature.—ED.]

THAT WINTERING SYMPOSIUM.

LAYING OUT A QUADRUPLE-HIVE APIARY.

By E. France.

I was asked to write an article on the subject mentioned above, but was unable to do so, on account of sickness—first myself ten days, then my wife. Then as I did not get the article written in time I was asked to review and comment on the others.

The first article, by J. E. Crane, take it as a whole, is an excellent one. I find no fault with it, except one point—a very important part of the winter problem. He says he fed 8500 lbs. of syrup this fall. Now, I want to know why he fed the sugar syrup. Did you feed that syrup for the same reason that I fed mine syrup—because the bees did not gather enough honey to winter on? or did you take the honey from the bees, and feed syrup, *knowing* by your experience that syrup, as you make it, is a better winter feed than honey gathered and stored by the bees? Do you practice taking away the honey, and then feed syrup for winter feed?

The next article, by J. A. Green, is excellent. His ideas of an abundance of feed for winter just suit me, as my motto is that a great deal too much honey is just enough. I don't want to feed bees in the spring if it can be avoided. It doesn't do any harm if the bees have a few pounds left over. I believe all who winter outdoors in the North agree that the hives must have thick walls, or double, filled in with chaff or some other packing. I see that Mr. Green packs four hives together to winter, and puts a large box around the four packs inside of the large box, around the single hives. I think it would be less trouble for him to use a quadruple hive, without side packing. He would then have his four colonies ready at any time for winter by filling the top chamber with straw, or putting on top cushions. That is the way we do it. It is just as good, and saves lots of hard work. I see he also uses sealed covers. So do we.

All the other articles pertain to indoor wintering. As we winter all outdoors, I am "not in it," and have nothing to say. I will say this: Take all the articles together, they are *good*—very good, and I think it will be a long time be-

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fore you get as many articles together again, on any subject pertaining to bee-keeping, as good as those are.

NUMBERING HIVES.

Replying to S. E. Miller, page 802, Dec. 1st, I would say: We used to number all our hives, and keep records of every thing that was done with them; but of late we do not keep any records at all — only a card tacked on top of the honey-boards of each colony, and that is used only to show the condition in relation to the queen. When we did have our hives numbered we used a method similar to Mr. Miller's, but we had four in a group. You see we use a quadruple hive. We numbered the stands, beginning at one end of a row at the corner of the yard, then 1, 2, 3, and so the length of the row, and back on the next row, taking the rows in turn back and forth until all were numbered; then the divisions of the hive were all the same. The southeast corner was division one; the northeast division was D. 2; northwest, D. 3; and southwest, D. 4. The divisions all being the same, it is easy to remember them.

A nice way to lay out an apiary for quadruple hives is to have 5 stands in a row, and 5 rows; 5 times 5 is 25 stands; 4 colonies in a stand, 4 times 25 is 100 colonies. Place those stands 16 feet from center to center. Then I would take the center stand for a place to put in my extracting-tent. That would give us 96 colonies in the apiary. But I would not change the numbers of the stands, because I used No. 13 for the tent. It is very handy to have those rows contain just 5 numbers, as you can always catch at a glance the number of the stand where you are by just looking up and seeing which row you are in. It is easy for me to keep those numbers in my head. I don't want to bother with numbers on the hives. But unless one is raising queens to sell, what difference does it make about the numbers? We don't keep them any more. We now tack on to each hive, on the honey-board, a clean piece of white cardboard, about 3 inches square. On that we write dates, and any thing we want to remember about the queen, and that is about all we care for. The condition of the colony shows for itself when we open it, and there is very little recording necessary; and what we do is done with very few figures and letters.

After our bees are put into winter quarters we never meddle with them until warm weather in spring. Some fine day in April we go to one of our out-yards and open every hive to see if they have feed enough. Then we note on the cardboard the condition of the colony. For instance, first the year, 1896 (that is not repeated again during the season). Then say 4—10 (Apr. 10); then the condition of the colony, which may be good or H-1 or H-2 or H-3. H-1 means honey enough to last through; H-2 means that the colony wants feed within a month; H-3 means very little honey — must be fed soon. If there are any poorer than H-3 we change an empty comb for a honey-comb from some colony that can spare it. We note also the strength of the colony by B-1, B-2, etc. Then if there is any feeding to do we note down the amount the yard wants, and take that account home, and come and feed when it is necessary. When it is time to clip queens (which should be done before there is danger of swarms) we go over every colony and see that the queen is clipped. If we find a queen that has been clipped we mark on the card "q. w. c.," which means "queen was clipped." If we find a queen with whole wings we clip her and mark "c. q." We have other short marks for what we do through the season. There is plenty of room on a small card for every thing for the whole season, and it is good for only the one season, any way.

Platteville, Wis.

HOUSE-APIARIES.

A FEW HINTS ON THEIR CONSTRUCTION.

By E. E. Stingerland.

Mr. Editor:—I note in GLEANINGS, page 903, you are about to build a house-apiary. Perhaps a few hints gleaned from my experience may reflect a little light on your plans. I have had the pleasure of handling bees in a house-apiary for the past six years, and I indorse all that has been said in favor of them, and will add that this is certainly the way to care for bees in order to save labor, which, you will agree, is the greatest item of expense in the production of honey.

To be sure, the common outdoor hive must be used, resting on shelves; the building painted in colors, large openings not less than 4x8 in., cut in various forms. These are closed in the fall with a slide or board on the inside, with small auger-hole, or slat, to admit entrance to hives. In settled winter weather a board closes all up tight on the outside. For admitting light, one opening with shutter is sufficient for every two hives. Don't make the building too large; i. e., to contain any more cubic feet of space than is necessary for convenience in handling, on account of being much better for wintering if in close quarters.

A raised earth floor will keep dry, and does not sound or disturb bees when walking or working with them. With these large openings at the entrances, and the openings to admit light at the hive one is at work with, I have not been troubled with smoke to speak of; but when I build another house I shall put in ventilators to carry off smoke. Of course, I could put them in the building I am using now; but only on close sultry days have I felt the need of any, so I neglect to do so.

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I will cheerfully give any further explanation or detailed description of my plan if desired.

Troy, Pa., Dec. 11.

[The idea of having a raised earth floor is capital. It would, as you say, be noiseless; and, being raised above the surrounding ground, it would be dry. I have noticed in our house-apiary, when we walk over the board floor just after opening the door, that there would be a repsonse in the way of loud humming.—ED.]

WHAT SIZE OF BROOD-CHAMBER?

IS THE EFFICIENCY OF A COLONY MEASURED BY THE SIZE OF ITS BROOD-NEST? WILL A GIVEN COLONY PRODUCE MORE HONEY IN A GIVEN SPACE OF EXTRACTED THAN OF COMB?

By Dr. C. C. Miller.

That belated footnote on page 779, 1895, has interested me very much, and I've studied over it a good deal. One point of special interest is that you say in the three-story hives with brood in twelve or fourteen frames you got much more honey in proportion than from colonies having two stories and the queen confined wholly to the lower story. Nearly every year for several years I have had in each apiary one or two colonies used as a sort of reservoir, in which were put frames of brood or honey to be taken care of, and to be drawn upon whenever needed. These "piles," as we called them, would run up three and four stories high, and it always seemed to me that they stored more honey in proportion to the number of bees than other colonies; and, like your "hummers," not one of the "piles" ever offered to swarm. But then, one reason for their not swarming may have been that they were weak colonies at the beginning of the harvest—too weak to take sections, and their growing strong was a work of degrees.

Against the view that room alone prevented swarming, stands the fact that, in the past season, preparations for swarming were made in colonies having two stories, one of the stories being very little occupied, and no excluder between.

It would be a very nice thing if we could be sure that the efficiency of a colony could be definitely measured by the amount of room allowed the queen for breeding; and for extracted honey I'm not sure that I ever saw objections made by American bee-keepers to allowing unlimited breeding-room. But in the German journals I have more than once seen the statement that, in certain seasons, the colonies which had unlimited breeding-room gave no surplus, while those with limited room for breeding gave a surplus. That makes me just a little afraid that *sometimes* such large breeding-space may be detrimental. I have, however, never seen any evidence to that effect in my experience.

You say, "In running for comb honey the case is so different that I think I should try to confine the queen to the lower story." I know it is the orthodox thing to consider that comb-honey rules have little or nothing in common with the rules for extracted honey; but in many cases it seems something of a puzzle to me why there should be such a difference. Take your hummers. With the queen spreading herself in two stories, and only two combs in those two stories without brood, you got a lot of extracted honey—more than you would have done if the queen had been confined to the lower story. You could have taken very little honey from the second story unless you took it from combs containing brood, and nowadays it isn't considered the best practice to put into the extractor combs containing brood. So it is perhaps fair to conclude that you got the honey mainly from the upper story, and that you would have got about the same results if you had extracted from the upper story alone.

Now, the question that puzzles me is this: If letting the queen have two stories below gave more extracted honey in the third story, why shouldn't it give more comb honey in the same story? Just explain that to me if you can.

It has been unfortunate for me that the past two seasons have been seasons of utter failure, so that, so far as experience goes, I am but little in advance of where I stood in the year 1893; but from what little experience I have had, and from watching with intense interest the testimony of others, I feel pretty sure that, to confine a queen to eight frames for the whole year, is not the best thing. With only eight frames a good queen will not develop so strong a force of bees as she will with more.

One of the questions yet unanswered is, whether it is better to allow the same number of frames all the year through, or to limit the queen during the harvest. Another is, whether it is just as well to have twelve or more combs in two stories as to have them spread horizontally in a single story.

I have eight colonies in eleven-frame hives, and the rest in eight-frame hives. Until I have different light from what I now have, my practice shall be to let the queen have all the room she will occupy before and after the honey-harvest; and until I know more about it, most of the eight-framers will be reduced to one story during harvest; but for the sake of comparison some will have two stories during harvest. Of course, all of this is on the supposition that I shall live long enough for a honey-harvest to come around this way once more.

FRAME-SPACERS.

Now for the footnote on page 776. With two months more of experience, and that through the worst of the year for propolis, I am very decided in the opinion that I like best, of any frames I have ever tried, those with all parts, top, end, and bottom bars, the same width, and

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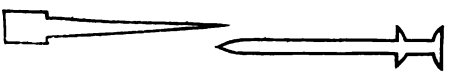
spaced with nails. That makes fixed distances at all parts of the frame; and not only fixed distances, but all distances the same. With the Hoffman, or any other frame having the spacing mostly or entirely at the top, the frames may be fixed at the bottom, but they are fixed at irregular distances.

You say finishing-nails are an obstruction to the uncapping-knife. That's no objection to producers of comb honey, and please don't deny us what may clearly seem the best, just for the "convenience of supply-manufacturers." Poor supply-manufacturers! They get it on both sides. One man blames them for encouraging changes, and another blames them for trying to keep the number of supplies down to as low a number as possible. But if I were running for extracted honey exclusively, I should still want the frames with four nails in each. As the nails on each side are at only one end, if at the time of uncapping the nails be at the upper end I do not see that they need to be so very much in the way of uncapping; and if the nail-heads be always kept uppermost, they need not catch in the meshes of the wire cloth of the extractor. The extractor can be made so that the wire cloth need not come up as far as the nails. Come to think of it, the nails would be at the bottom with a reversible extractor. Well, have the wire cloth short enough to clear the nails both bottom and top. Make the extractor accommodate the frame, rather than have an inferior frame to accommodate the extractor.

You say the finishing-nails would not stand a hard enough squeeze without pushing the nail in farther or making the head of the nail punch into the opposing wood. You're right, as I found by further experience. And the same objection holds to a less degree against the furniture-nails. You say, try those that are perfectly conical. I hardly think you mean that, for that would be worse than the finishing-nail, for the head would come to a sharp point. You probably mean hemispherical. But still that would not be so good as a perfectly flat surface. We want the point of contact just as small as can be without allowing it to punch into the wood with a hard squeeze. A common wire nail, heavy enough so it will not be driven farther into the wood by a hard squeeze, with a flat head $\frac{3}{16}$ in diameter, would perhaps answer. Still better might be a nail with a head just ¼ inch in thickness and $\frac{3}{16}$ in diameter. That would make a sure thing of always driving the right depth, without trouble. Or perhaps it might be better to have a two-headed nail, the one head within ¼ inch of the other.



I find in actual practice that the catching of the nail-heads is rather a matter of theory, and counts very little. I feel very confident that, if you should fairly try, side by side, the furniture-nails with other nails, you would, like myself, change your mind.

With nails as spacers, there is still left the trouble of the ends of the top-bars being glued. I wonder if vaseline would help that. If the frames could be handled as easily, it might be a good thing to have the top-bar of uniform width throughout, ¼ inch less at each end than the usual length, and then a spacing-nail driven into the end. I half believe I'd like to try that. But it might be inconvenient to handle.

Marengo, Ill.

[Yes, I think the case of the comb-honey colony and that of the extracted are quite a little different. Bees will store honey much more readily in brood or extracting combs, because, I suppose, they are not divided up into little squares of 4 inches. My observation has always seemed to indicate that bees will begin to store in extracting-combs sooner than in sections, even when the latter have partially drawn-out combs. In other words, I believe it takes more *pressure* to induce bees to go into sections than into extracting-combs. That being the case, for comb honey it is desirable to reduce the size of the hive, and *force* the bees to put it into a place divided off into little squares whether they like them or not. There, I believe that answers your puzzle, so far as I am able to do so.

As to your other question yet unanswered, whether it is better to allow the same number of frames all the year through, or limit the queen during the harvest, from what facts I have been able to glean from different bee-keepers who have reported on this matter, I think the majority decide that it is better to give the queen an abundance of room during the breeding-season, and, later on, to reduce this breeding-room just about the time honey begins to come in.

I have no doubt that your nail spacers, such as you illustrate, will work very nicely so far as the convenience of a comb-honey producer is concerned; but there are just two things that stand in the way of their general adoption. The first—and perhaps we could remove that if we could be sure of the demand—is the cost of making such spacers, because there is nothing like them *already* on the market, to reduce their cost. The second is, that extracted-honey producers dislike nails sticking out—first, because of the uncapping-knife; and, second, because of the catching of the nails in the meshes of the wire cloth. I know you have alluded to this point; but you produce no extracted honey, and I think you do not fully appreciate the objections of your extracted-honey brothers.—ED.]

POULTRY WITH BEES.

By Dr. H. J. Ashley.

After five or six unprecedentedly bad years for our favorite pursuit, the question arises in the minds of many bee-keepers, "Is there some occupation I can combine to advantage with bee-keeping, or must I sacrifice my stock of bees, together with fixtures and appliances, that I have spent years in perfecting?" This question has come to us many times; and we believe from personal experience that the rais-

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ing of poultry furnishes just what we are looking for; namely, an occupation not laborious, but whose returns for faithful attention are sure, and where the most active labor comes at that season of year when bees need the least attention. This is equally suitable for the bee-keeper who does the work himself, or for him who, like ourselves, while actively engaged in professional work, wants something at home which, by way of change, furnishes pleasure and relaxation, and still makes it profitable to keep a good active man of all work. By keeping a few standard-bred fowls of a variety giving a profusion of eggs and fine bodies, we have the pleasure of seeing fine birds of uniform size and color, and having on our tables fresh eggs, and fowls of our own raising; and, even without any special effort by advertising, there will be a demand among our friends and neighbors for settings of eggs, with an occasional call for a trio, or pen of birds from our pure-bred stock, which, sold at even a moderate price, will soon more than repay the difference in the original cost between starting with thoroughbreds and common fowls; and in nothing does blood tell more surely than in fowls.

Our acquaintance with bee-keepers, as formed at conventions and elsewhere, has proven to us that they are universally intelligent and skillful in those nice little points of observation and care that go to make up a successful poultry-keeper—especially if artificial incubation is practiced. It does not require a great outlay of money to purchase a small self-regulating incubator and a brooder which, even in the hands of the novice, does very satisfactory work, enabling one to hatch his chicks in March or April, thus giving them pullets that will begin laying in November; and, with proper care, will just "shell out" the eggs during the winter months when prices are high.

In May or June, when the bees begin to require close care and attention, the chicks will be out of the brooder; and, if allowed free range, will require little care, save feeding morning and night.

At this time eggs are low; and, if desirable on account of lessening labor, or for lack of room, the year-old fowls may be disposed of, either in market or, as is often the case, to farmers who desire to introduce standard blood into their flocks, thus leaving June, July, August, and September to devote almost exclusively to the bees. In October, dispose of extra cockerels and cull out the pullets, and begin to prepare them for their winter's work.

As one by experience becomes proficient in the use of incubator and brooder, broiler-raising offers a very substantial increase in the income from the poultry-yard.

Chicks hatched in January will be ready for market in March or April, if of a variety suitable for broilers, and should then be sent to city market, pullets and all, where they will bring fancy prices, leaving brooders ready to receive our March-hatched chicks from which to select our pullets for the next-winter layers.

Bee-keepers will find the shop and tools so necessary to the apiary just the thing with which to make the numerous little appliances which go with the chicken and egg business.

Machias, N. Y.

CALIFORNIA WILD BUCKWHEAT.

WHERE FOUND; HONEY OF GOOD QUALITY; THE RAMBLER ARTICLES.

By A. Norton.

Rambler calls for notes from others relative to the California "wild buckwheat" as a honey-plant (see Dec. 15th issue). I will merely support his testimony, for he has stated the case just about as I have observed it, not only as to the value of the plant for honey, but as to the conditions of the seasons that are most favorable to it.

In the season of 1884, after an unusually heavy rainfall for the winter, almost all of which fell after Jan. 20, supplemented by that great rarity for California, two considerable rains in June, I had bees in Gonzales, Monterey Co., that gathered from 50 to 60 lbs. of nice honey per colony in August after I had taken what I thought to be all the surplus that I could get. I left only a few colonies in shape for storing this extra surplus, otherwise I might have obtained much more. The honey was light amber, and not very thick, but possessed a good flavor.

This plant, *Erigonum fasciculatum*, is found principally in the southern counties of California; but it is abundant in many parts of Montery Co., and will, I doubt not, be found scattered over about the same area that is occupied by the black sage, and extending beyond the eastern limits of the latter, especially in the south. It is rather remarkable that the genus *Erigonum*, which is not represented east of the Rocky Mountains, but is about as closely related to smartweed and buckwheat as beans and peas are to clover, has upward of 60 species in California; and yet that *E. fasciculatum* is the only species generally known as a honey-plant.

Here at Monterey, and southward along the coast strip as far as Santa Barbara, this species is not frequently found, but is replaced by another of the same sub-section of the genus *E. parvifolium*—taller, more leafy, and with larger heads of deeper-colored flowers. The bees work on this sparingly in the fall. Has Rambler found this as far south as where he lives? If not, he should have met, near the coast in Los Angeles Co., especially at San Pedro, the other species of that sub-section, *E. cinereum*. These three species are so closely related as to form a sub-section by themselves. If Rambler

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has found this last-named species I should like to hear whether bees work upon it.

In Monterey Co. I have seen bees a little on *E. angulosum*, of quite a different section of the genus. Perhaps it is no more singular that so few species of so large a genus are frequented by bees than that the *Melilotus parvifolia*, one of the sweet clovers, is very common in California, but I have never seen a bee working on it anywhere.

Let me here cast my ballot in favor of Rambler's still continuing to write for GLEANINGS. I doubt whether any series of articles will be more missed than his. There is plenty to see in California yet; but if he thinks it is getting to be old to him, then let him and Wilder and the pony branch out into Arizona. If he thinks his ranch is beginning to require his constant presence, we can send some ladies down there to make him think differently. A. NORTON.

Monterey, Cal., Dec 31, 1895.

AN UNCAPPING-BOX.

A CHEAP HOME-MADE UNCAPPING-BOX, WITH DEVICE FOR REVERSING COMBS FOR UNCAPPING.

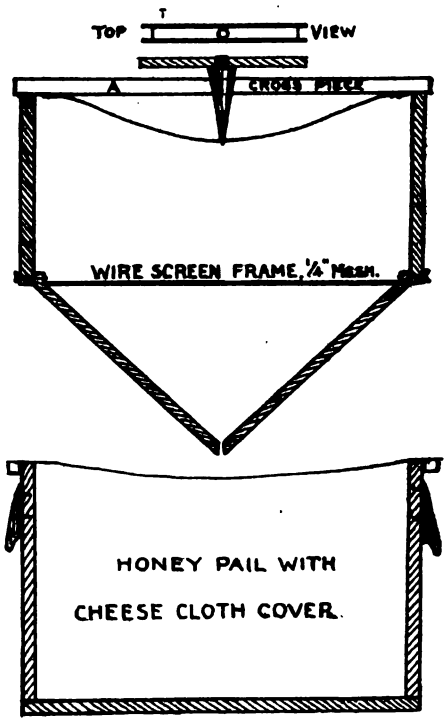
By H. W. Mitchell.

The cross-piece A is made of a strip of pine 2 inches wide, and long enough to reach across whatever receptacle is used for uncapping over. In the center of the strip, bore a ¾-in. hole for a spindle to pass through. The comb-rest is a piece 1 inch wide, and as long as the end-bar of the brood-frame. On each side, near the ends, nail a narrow strip of heavy tin projecting beyond the ends of the strip about ⅜ in. (these little lugs hold the top-bar of the brood-frame in place, and prevent its slipping off sidewise when whirled around).* In the center of this revolving support I bore a ½-in. hole, and insert the upper end of the spindle, and fasten securely. The spindle itself is about 6 inches long, and passes through the hole in the cross-piece, fitting snugly, and the point fits into a small hole in the tin brace (just below A), which is a 2-inch-wide strip of tin nailed to the cross-piece in the manner shown in sketch, the object being to give two bearings to the spindle, and prevent any wabbling of the comb-rest.

To uncap, place a comb on end on the rest; slice off one side, whirl around, and uncap the other.

The spindle can be made of hard wood. I myself used the socket of an old garden-hoe, with enough of the handle left to mortise into the comb-rest.

The arrangement can be placed on top of a box or a half-barrel, or any thing that will hold the uncappings. I use a box with a hopper-bottom, as shown in the lower sketch. On a frame that just fits the inside of the box I nail ¼-inch-mesh tin wire netting (see upper sketch). This frame drops inside of the box, and rests where the hopper shape begins. This serves to hold the cappings, and allows them to drain. The honey runs down the hopper through a small hole into the receiver underneath, which is covered with cheese-cloth.



My extractor is fastened to a table that is long enough to allow of this box being fastened to it at the right-hand side, and at a convenient height for uncapping. By having the box large enough to hold a day's uncappings they can drain over night, and be dry enough to put into the solar wax-extractor next morning, ready for a fresh start.

AN APIARY KNIFE-CHISEL.

This I find very handy to pry off covers or bodies, loosen frames, scrape off tops of frames, cut out pieces of comb, etc. It is made by tak-

ing a ¾-inch Addis wood-carving chisel, and grinding one side to a chisel edge. I use a wood-carving chisel, as the blade is much thinner than an ordinary carpenters' chisel, and the steel of extra quality. I like this better

*The engraving at this point is not strictly correct.—ED.

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than any thing else I have ever tried, for the purpose for which it is adapted.

REPORTS FROM THE MANGROVE BELT.

These have been rather conspicuous by their absence this season, owing to the freezing-down of our mangroves. Yields have been light, although, so far as my own apiary is concerned, I have no cause for complaint, as I managed to secure something over 100 lbs. per colony. While this falls far short of last season's yield, it does very well, and is about the best for this vicinity.

I see the hive discussion is still on deck; but, as we crackers say, "it looks like" all the points that are likely to be brought out have come to light. I should like to know how many bee-keepers have been induced to see the error of their ways, and have changed the size of their hives, by the discussion.

I am still a believer in the eight frame, after using the ten frame almost exclusively for several seasons; also several seasons' experience with the one-story "Long Idea" Langstroth frame. I feel certain that, for my use, with my methods, the eight-frame Langstroth is far and away the best. For a weak colony, an eight-frame body is large enough to build them up in; for a fairly good one, two bodies with 15 frames is about right; and for a strong flourishing one, ready for the honey-flow, three stories with 22 frames hit it about right for me. So with the eight-frame hive I can come nearer making the "punishment fit the crime" than with any other.

Hawk's Park, Fla.

[I have already announced that the hive discussion is to come to a close.—ED.]

THE ADVANTAGE OF NUMBERING HIVES.

THE CONVENIENCE OF THE RECORD-BOOK.

By Emma Wilson.

Suppose I met a man while down street to-day whose name I did not know, and wanted to tell Dr. Miller, when I came home, who it was I had seen. I should most likely begin to describe him, tell whether he was tall or short, fat or thin, dark or light, and how he was dressed. If there was any peculiarity about him I should mention it; and after I'd been to all that trouble he might not be able to tell who he was. Now, if I had known his name was John Smith, and there was only one John Smith in the place, I need only have said, "I met John Smith to-day," and he would have known immediately whom I meant. Just think how much time and trouble I might have been saved if I had only known his name! Now just imagine what a muddle we should be in, most of the time, if people were without names!

Now, it seems to me just about as necessary to number or name colonies of bees as it is to name people. If I had to stop and describe each colony of bees by some peculiarity of hive or location every time I wanted to refer to it, instead of saying No. 12 or No. 9, I believe I should get discouraged, and just give up. It seems to me a bee-keeper's time is too valuable to be wasted in that way.

For instance, suppose Dr. Miller told me, "Get a frame of brood and bees from No. 2 and give it to 49," it wouldn't take him very long to tell me, nor me very long to do it. But, oh dear me! suppose our colonies were not numbered, and he had to stop to describe them. I might not understand perfectly, and get the wrong colony, and what a muddle it would be! Then think of similar orders many times a day! I don't believe I'd want to work in the apiary very long.

It seems to me pretty clear, if two persons are at work in the same apiary, and the colonies are to be talked about, that they need names of some kind, and I don't know of any thing more convenient for names than numbers. Now, how would it be if only one person were at work in the apiary? Well, suppose he's at work at No. 49, and wants to get a frame of brood and bees from No. 2. Unless he marks No. 49 in some way when he goes to No. 2, he is liable to make a mistake and get the wrong colony when he comes back.

But if there were no other reason for it, I should want them numbered in order that a record might be kept. You know when children dispute with regard to their ages they are always referred to the family Bible. Well, when we want to be sure of our queens' ages we refer to the record-book.

Suppose I go to a colony and find that it is queenless. Is the record-book now of any use to me? Of course, it is. I can take the book and look and see if there is any colony I can go to for queen-cells, tell how ripe they are, tell whether it's a colony I want to breed from, whether it's gentle or cross, whether they are good workers or not; in fact, tell all about them.

With a record-book you can sit down and map out your day's work and know just what you're going to do beforehand. In fact, I don't see how any one can get along without one. If we should forget ours when we go to the out-apiaries we should have to go back after it, and it would be a difficult thing to keep a record-book without having your colonies numbered.

Marengo, Ill., Dec. 12.

[I think we shall all have to accept this fact, that, if a record-book is used, hive-numbering is a necessity.

Yes, it is indeed true that the book enables one to plan out the work in the apiary beforehand, and while at work in the yard it may save many steps. Suppose I want a certain kind of queen with which to fill an order. Instead of walking from one hive to another, in-

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specting the records on the hives, I could *sit in the shade* and turn the *leaves* over; and when the desired queen was found, or queen-cells of the right age, we will say, I go direct to the hive bearing the number designated. And then, again, it is interesting to go over the record-book quietly in the house. Sometimes we would find something seriously needing attention: and, again, we run across some interesting facts, as shown by the record routine work. This was forcibly brought to my mind when Dr. Miller read over to me page after page of his record-book one evening at his house.—ED.]

ABOUT BEE-CAVES.

Question.—I wish to build a winter repository for my bees. There is a clay bank or hill near my bee-yard. If I build a house, walled with stone, in that bank, 24 to 30 feet long, 10 feet wide and 7 feet high, the front end of which will be out of ground considerably, will it be too damp for the bees?

Answer.—No, not if well drained, and probably it would not be too damp if not drained at all, only so that the water might not come up about the hives, should a sudden freshet occur during the winter. If I am right, none of the bee fraternity have positively proven that dampness is injurious to bees. Let me ask a question. Is not a damp cellar the best to winter bees in? A moist air is promotive of health in our houses—why not in bee-cellars? I believe dampness in winter respositories is one of the agencies in causing bee-diarrhea, only when the temperature is so low as to condense the vapor on the inside of the hives and combs. It would be well to consider the difference in effect on animal life, between a warm damp atmosphere and a cool damp one, in all our talk in the matter of cellar wintering. But, unless that front end of the cellar is well covered with earth I should fear too low a temperature during cold spells in winter. I should be much more concerned to have the temperature entirely in my control, than about dampness. Give me a cellar that will not vary from 45°, and good stores, and I have little fear as to how the bees will come out in the spring. This I say after many years of successful cellar wintering, and after watching others who have invariably wintered their bees well also. After you have your cellar built, cover the front end over with from three to four feet of earth, and over the whole put a roof so that the dirt may be kept dry at all times of the year, and I think you will find you have something that will be a joy to you for years to come, no matter whether you have two hundred colonies, or twenty to winter therein. The deeper you go into the ground, the more even will the temperature be likely to keep; and the more even the temperature, if it is as high as 45° or above, the more successfuly will the bees winter. I have used successfully a cellar very similar to what you speak of, for 20 years, with the exception of one winter when I used an oil-stove in it, when I lost heavily through the poisonous vapor given off into the room by this stove.

HOW MANY QUEENS FROM A NUCLEUS.

Question.—I am thinking some of going into the queen-rearing business next year, and should like to have you tell us in GLEANINGS how many queens can be sold from one nucleus colony in one month. By doing so you will help me to decide how many nucleus hives to make this winter.

Answer.—Very much depends on the weather, the loss of queens when going out to meet the drones (more being lost some seasons than others), and whether you hatch your queens in a lamp-nursery, or insert nearly mature queen-cells in your nucleus. If you practice the latter method, and are successful with it, you might succeed in sending off three queens a month from each nucleus. But introducing queens two or three days old from an incubator has proven an unsafe method with me, and one that causes more labor and worry than the time gained would compensate for; although some are still claiming that they have good success with this plan. By using the cell-plan, and having a system perfect enough so that the queen may emerge from the cell within twelve hours after being given to the nucleus, you will usually have a laying queen in said nucleus in ten days from time of giving the cell. Then in order to have your nucleus hold its own as to bees, this queen should be allowed to lay four or five days before sending her off; for if the queen is taken away when the combs contain only her eggs, the bees will often devour the most of them; when if a part have hatched into larvæ, all will be preserved; and in this case our nucleus is strengthened in bees according as the queen lays eggs. Again, as hinted at above, some seasons many queens are lost on their wedding-trip, and others balled after returning therefrom, till they die, or are valueless, either for sending off or for home use; any or all of which makes the matter of any certain number of queens, from any nucleus, in any certain time, very uncertain. My average number from a nucleus during the past ten years, has been about two a month. Some nuclei do better, others not as well, so that it is always well to calculate on having a few more nuclei than you really expect you will need to fill all orders; and even then, if your case proves any thing like mine you will be obliged to return money for some unfilled orders at the end of the season.

BLACK AND ITALIAN BEES.

Question.—Last summer I had a colony that gave well-marked Italian bees in the same hive

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with blacks, or nearly blacks, when the brood was all from the same queen. Why was this so?

Answer.—If you had told whether you had one colony or one hundred, or if you had Italians and blacks in the same yard, standing near each other, an intelligent answer could have been more easily given. If you had a pure German colony and an Italian colony standing side by side, it would be nothing at all unusual for you to find things as you state; for young bees, when out for an airing, often mix, where hives stand close together. If this is not the right solution to the problem, then I should calculate that your black or German queen mated with an Italian drone, so that she produced what is known as hybrid bees; and I judge this latter is the real truth in the case. Where a German queen mates with an Italian drone, many of her bees look like good Italians, many like blacks, and the majority are a mixture of the two as to markings.

Heads of Grain from Different Fields

I had been invited, by the committee of the Woman's Congress of the Cotton States Exposition, to deliver at the Assembly Hall of the Woman's Building an essay on bee culture for women, which I did; and illustrated, by means of charts, the fertilization of flowers. At the close we had a pleasant "conversazione" relative to bees and honey-plants.

While at the exposition at Atlanta I kept a sharp lookout to see what advancement the Cotton States had made in bee culture. On entering the Georgia Building I saw a creditable exhibit of honey and supplies, by Dr. Brown, of Augusta. In the Negro Building was a small but neat case of comb honey from Alabama. In the West Florida exhibit, Alderman & Roberts, of Wewahitchka, had bees, comb, and extracted honey, bearing its trademark of "Orange Bloom." In the Plant Building was a case of several varieties of comb honey of a peculiar whiteness, from Manatee Co. I also saw bales of alfalfa, which promises much to the bee culturists of Florida.

At St. Andrews Bay, the past season, the honey-flow was a failure, owing to an unprecedented fall of rain during the early bloom. When it stopped it was followed by a severe and protracted drouth.

A lady told me to-day, that, while stopping this fall at Pensacola, she wanted honey to cure a cold, and inquired for it at groceries and drugstores, but failed to find any.

MRS. L. HARRISON.

St. Andrews, Fla., Dec. 25.

HOW LANGSTROTH WAS ESTEEMED IN RUSSIA.

The following will explain itself:

Mr. A. I. Root:—The Russian Society of Apiculture has received the sad news of the death of father L. L. Langstroth, the most eminent bee-keeper of the century. The members of our society know that the American bee-keepers, as brothers of a large family, have done their best to gladden the last days of their leader, and that your journal was a distributing center of the gifts to him.

At the meeting on the 10th of December the undersigned bee-keepers, members of the Russian Society of Apiculture, collected the sum of 53 rubles ($26.90), and have asked me, as the chief editor of the *Journal of the Russian Society of Apiculture*, to send to you this sum, and to beg you to be so kind as to forward it to the remaining family of Mr. Langstroth. May the check inclosed be at least a faint indication of the friendship between the Russian and American bee-keepers.

All the members present express their sincere regards to the memory of the great bee-keeper, and their honorable respect to his family.

I give here the list of names of the bee-keepers who were present at the meeting of Dec. 10, and who have made donations:

Belewich, Nasilof, L. Glasenapp, S. Glasenapp, Maloff, Philosophff, Nikiforoff, Aiferoff, Goni, Pentkowsky, Staritzky, Molewsky-Molewich, Owsiannikoff, Pocrowsky, Glagolewa, Shipmanoff, Aglenko, Kasin, Tomlioff, Mendel, Pelesky, Tezofimoff.

I am, sir, very truly yours,

PROF. S. GLASENAPP.

University of St. Petersburg, Russia.

[I am sure our American bee-keepers will greatly appreciate this honor. We take pleasure in forwarding the amount to Mrs. Cowan, the daughter of Mr. Langstroth, at Dayton.—ED.]

THOSE RAMBLER ARTICLES.

You ask for opinions about a cessation of Rambler's articles. Perhaps as records of travel they had; for, good as they have been, people will tire. Notwithstanding, I freely express my appreciation of them as having been intellectually vigorous, well illustrated, geographically instructive, having wholesome humor without loss of respectability, and, withal, having a good moral pointing, calculated to inspire both old and young. And as to the future say: Rambler, knowing what he does about the practical side of apiculture, admitting that his growing apiary demands more attention, might be expected to give readers of GLEANINGS first-class items warm from the workman's hand and brain. Of all the heretofore regular contributors, I fancy that Rambler's new articles, fresh from actual bee-work of his own, would be read more eagerly than any others, unless those of Mr. Doolittle and Dr. Miller are excepted. T. C. POTTER.

Indianapolis, Ind., Dec. 28.

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[The foregoing is a fair sample of the many indorsements we have received for those articles of travel from the Rambler. He will continue to write as formerly. The Echoes will appear as usual, and then there will be another department conducted by him soon.—ED.]

BEE-PARALYSIS IS TRANSMITTED BY QUEEN; BLACKS NOT PROOF AGAINST IT.

Among my 47 colonies I have about 4 that show symptoms of paralysis. One of the four is a colony built up from a nucleus purchased from Mrs. Atchley last spring I placed the hive 30 yards from the apiary, in the hope that it would not contract the disease; but, sure enough, they got it—probably through robbing. This is another proof of the contagious character of the malady.

I note the conclusion at Atlanta as to the disease not being transmitted through the queen. This is a mistake. It got into my brother's apiary through a queen which I gave him. There is another popular error. The blacks have it just like the Italians.

I know that there are queen-breeders who have bee-paralysis in their apiaries. It would be to the interest of such to disseminate the idea that queens do not communicate the infection. It is to be hoped that no such notion would influence any one. It is an indisputable fact that an infected queen will infect a colony, from which the disease may spread to a whole apiary. I have seen the whole process.

Columbia, Miss., Dec. 26. T. S. FORD.

[Mr. Ford has probably had more experience with bee-paralysis than any other man in the country. I insert this at this time because it refutes some late popular notions.—ED.]

MORE PROOF SHOWING THAT OLD FOUNDATION IS AS GOOD AS NEW.

Mr. Editor:—Since you wish further information from bee-keepers who have used old and new comb foundation, I will add my experience. I procured my first foundation from John Long, who first placed it on the market. I purchased one pound of him at a cost of one dollar. This was bleached white, and was hard and brittle, but looked nice; but on trial it proved useless, or worse than that, as the bees tore it down and removed it from the hive, building new comb in its place. After this, foundation was next made from wax unbleached, and it proved a grand success. During all these years I have used it as made, with good results, and have had at the close of each season more or less to carry over in the honey-boxes and brood-frames undrawn, or as I placed it in the boxes or brood frames. I have stored the cases so that the light could not strike on the foundation, and it has at all times been readily accepted by the bees—as much so as that recently from the mill or press. As the older bee-keepers well know, many bought mills and made their own foundation, with little or no knowledge as to cleansing wax, its purity, or its proper manipulation; and it would not have been surprising if some had been made that the bees would not accept. I tested a few pounds at different times, made by such, and it did not at all compare with that sent out by those who understood the business almost perfectly. I never attempted to make foundation, as I thought it much better to buy of reliable parties who knew how to make a No. 1 article, and I think I have been well repaid for doing so, rather than attempt it myself. Foundation should at all times be kept in the dark, as light injures its value. I have kept it three or four years as good as new.

Milledgeville, Ill., Dec. 14. F. A. SNELL.

THE SITUATION IN CUBA SO FAR AS HONEY IS CONCERNED.

The war, which broke out in this island last February, has made bee culture or honey-raising next to impossible in our country places; so, after getting ready to work I was compelled to give up my intention, and must wait to see what all this will come to. The honey crop on the island will be small indeed, not only because the bees are not duly cared for, but because honey is used freely by the contending parties to sweeten their existence.

ALCIDES BETANCOURT.

Puerto Principe, Cuba.

BURNING OR WATER-SOAKING WAX.

I have been trying to refine wax in a barrel with steam from a high-pressure boiler, one-fourth full of water. I never dreamed that you could burn wax that way with the cover lightly on the barrel. I have wasted the most of my wax, beautiful uncappings among it, too. When I found out my mistake I hunted my A B C for something warning us against burning with steam, but could not find any thing about burning except putting wax itself on a bare fire. It may be mentioned: but if not, a word of warning to those who don't know any better than I did might save worry and expense. It may not be from burning; but the wax is spoiled at any rate. JOHN ALLEN.

Newboro, Oamaru, N. Z.

[While it is true you can burn wax with direct steam, or live steam, you can hardly do so by sending that steam into water and transmitting the heat indirectly from the water to the wax. Wax will never burn when over water, because it can never get hotter than the boiling-point. The trouble with your wax is probably not burning, as you suppose, but water-soaking the wax. While in this condition it is quite spongy, and appears as if it had been ground up into meal. When a handful of it is grabbed up it can be pressed together, and the water can be squeezed out as from a sponge. The only way of restoring such wax is to subject it to a *dry* heat, where the water can pass off. The solar wax-extractors are the best means of rendering such wax back to its cake form. Trays of such wax placed in the stove oven will also dry it out.—ED.]

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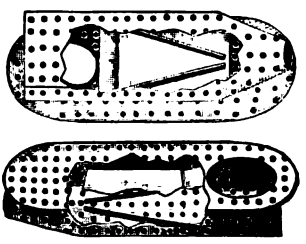
THE PORTER SPRING ESCAPE

FOR HONEY-ROOM WINDOWS.

By R. & E. C. Porter.

Having quite a quantity of honey to extract during the excessively hot weather of last September, when no nectar was to be had and robbing was at its worst, and knowing too well how ineffective cone escapes used on extracting-room windows or escapes, made by extending the screen wire to a considerable extent above them with a bee-space between it and the sides of the building were for excluding robbers at such a time, to enable us to get through with the work without annoyance we made, for this purpose, the escape shown in the accompanying illustration. This escape is a modification of the well known form of the Porter spring escape, now so extensively used for freeing the surplus honey from bees automatically before removal from the hives, the principle used being the same. It differs from that only in the details of construction necessary to adapt it to this particular use.

The top, or oval part, is perforated along the edges, so that the escape may be readily tacked to the casing or window-frame. The body is made of perforated tin, to admit light; and its open end is extended into a cone to prevent robbers crawling in at the sides of the springs and interfering with the bees passing out, which would occur if it were left open full width. As compared with the other form, the



interior part is reversed in position; the springs used are somewhat broader, and set slightly more open.

The method of applying these escapes to the window is almost too apparent to require explanation. Merely make ½ or ¾ inch holes through the screen wire at its upper corners; or, in case it is desirable to make holes without injury to the wire cloth, thus leaving it so that it can be replaced when the escapes are removed, if desired, remove the tacks from the corners and turn them down till triangular holes of corresponding size are formed, and then tack the escapes in a vertical position over these openings so that the bees can pass through them into the escapes. In case the window is provided with an escape made by extending the wire cloth above it, close the bee-space with a strip flush with the top of the window, and proceed as before. If escapes are not to be used on all the windows of the honey-room, preference should be given to those opening to the south or west, so that, on cold days, the bees may have the benefit of the afternoon sun.

After putting these escapes to the severest possible test under the most trying conditions, we have found them to meet all the requirements of a perfect device for this purpose. Since using them we realize as never before how many of the disagreeable features of bee-keeping are removed, and how much pleasure and satisfaction are added to the pursuit by having all windows of honey and extracting rooms supplied with escapes through which all bees that get in when doors are being opened or closed, or in any of the other ways these persistent little insects have of effecting this end, can pass out easily and rapidly, and not a single robber can enter.

While this form of escape was made primarily for our own convenience, yet our experience with it so impressed us with its value and usefulness to bee-keepers that we have arranged to make it for the trade. It will be sold through The A. I. Root Co.

Lewistown, Ill., Nov. 15.

DANZENBAKER'S 10-32 HIVE.

COMPLETE READY FOR A SWARM.

Consists of 10 brood-frames, 15½x6½ inches net comb surface; 32 sections 5x3⅞, 7 to the foot, supported in the case on 8 section-holders; the title signifying what constitutes a complete hive as used with a swarm. They have square edges fitting tightly together for tiering up, and extra bodies or supers may be used where conditions require it; but for average yields and localities this form will give the best results in comb honey, with good queens to crowd it with brood, and force the bees to store the honey in the sections.

The hives are made by The A. I. Root Co., with machinery specially adapted for the purpose of dovetailing, with smooth, accurately square cuts that come together true and square

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to stay so; can not be excelled anywhere, and, if well painted, will last a lifetime.

FIG. 1

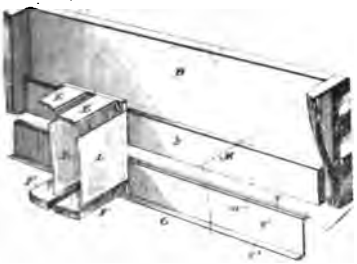

Fig. 1 shows the end of case, *B*, with the cleat *b* fastened to its lower edge to support the metal hanger *G*, having oppositely folded edges *g.g*, to keep it straight and true when its upper edge is hung upon the cleat *b*, and its lower edge is supporting the bottom-bars *F*, *F*, of the frames or section-holders, and sections *E*, *E*. *L* shows paraffine-paper separators secured to the end-bars of section-holders. *M* shows wooden separators notched at *m*, to rest on top of the flange of the metal hanger. Paraffine paper is also covered over the sections, and stuck down close and smooth, to obviate the necessity of the bees gathering propolis and soiling the sections.

FIG. 2.

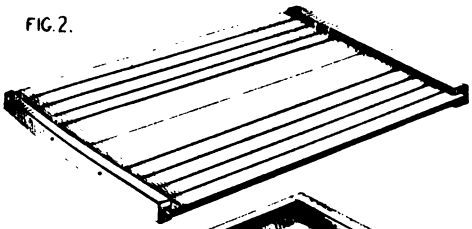

FIG. 3.

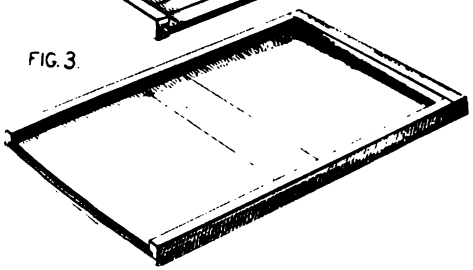

Fig. 2 shows the inside of a Higginsville cover as made for this hive, with eight scores half through its thickness, which keeps it as straight and true as a pane of glass, when nailed through the cleats ONLY *where the holes are pierced*, which allows the two boards of the cover to expand or contract in the grooves without twisting or cracking. It combines together the advantages of a flat and gable cover, without a nook for wasps or spiders. When painted outside, and coated with paraffine on the inside, it is the cleanest, lightest, and best cover out, and can be made absolutely storm-proof by fastening a sheet of paraffine paper with a warm iron, smooth on the inside of the cover, extending slightly beyond the edges, to turn down over the top edge of the hive, so that no water can pass into the joint under the cover, which extends ½ inch over the sides of the hive.

Fig. 3 is a light strong-framed hive-bottom, with grooved side-rails to hold the three thin boards true and straight, when nailed at their inner edges ONLY, *as the holes are pierced*, which allows for expansion and contraction freely in the grooves by the thin bottom over the end-cleats, so that it will not twist or split. The grooves are spaced to form a ⅞-inch bee-space on one side, or a full ¼ on the other, as occasion requires, by reversing the bottom. The side rails keep the bottom clear, that air may circulate freely beneath it, so that it is always dry, and affords no harbor for ants.

Closed end brood-frames ARE NOT *a recent invention. They are time-tried and proven.* It would be a *gross imposition* on the public to claim the exclusive right to use them.

Moses Quinby, the veteran of original investigators in his generation, in his "Mysteries of Bee-keeping," advocated, if he did not invent, the closed-end brood-frame. His biographer says, "Mr. Quinby quickly observed that bees *did not* winter as well in the L. hives (hanging frames) as in box hives, on account of the spaces at the ends of the frames, and set about *to remedy* it by making a closed-end frame."

Loose hanging frames, with currents of cold air around the ends of the combs, destroy thousands of colonies in winter and spring by chilling the bees and brood until they perish, *or are reduced in numbers so as to be utterly worthless.* One extra-strong colony will produce more surplus in a short honey flow or a poor season than ten weak ones, and are the only ones that pay at all.

That all may know at all times which is top or bottom of the brood-frames, they are made with wide thick beveled grooved top-bars, to receive foundation starters, which are held *securely in place by pressing* to the sharp side of the beveled edge, and filling, with glue or melted beeswax on the opposite side, so that they can not be dragged down by the weight of a new swarm. Starters half an inch wide are safest and best, securing straighter combs, as they can not twist or bulge out of shape.

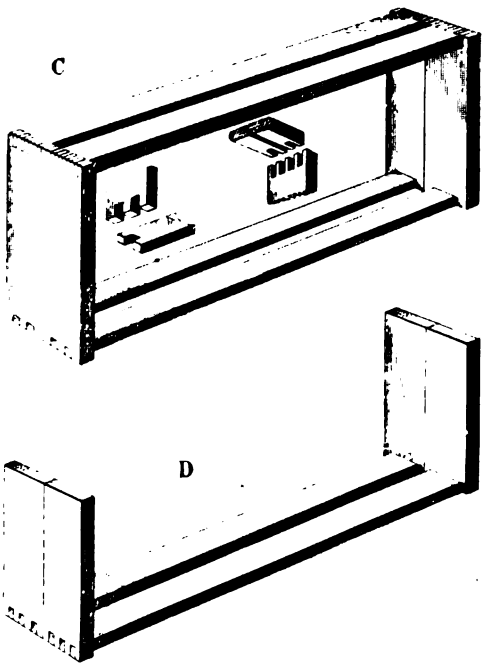

FIG. 4.

C shows the narrow bottom-bars of the brood-frames, affording space to note the con-

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dition of a colony from the bottom, without disturbing cover or super, by raising the hive partially from the bottom on its end. It also shows how the frames stand closed together, forming a close solid wall of themselves inside the hive.

D shows the section-holders, originated by The A. I. Root Co. They are just the best possible to use with these open-cornered sections, as they also form a complete inner wall within the super, checking the rapid radiation of bee-heat, enabling the bees to fill out to the wood the outside edge of the end sections. They will be made for this hive, dovetailed, the same as the brood-frames, by The A. I. Root Co., with special machinery, making smooth square cuts that fit true and square, standing straight and strong, *securing nice accuracy in* BEE-SPACES, by which *the queen is practically deterred from entering the supers, without use or need of honey-boards or queen-excluders of any kind.*

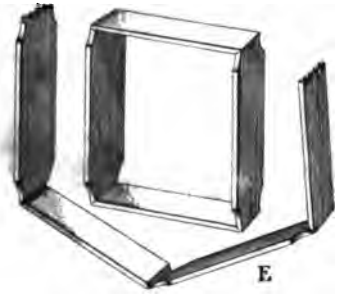

FIG. 5.

E shows the Prize sections, originated and still used (in four pieces dovetailed) by Capt. J. E. Hetherington, of Cherry Valley, N. Y., who is, doubtless, the largest owner of bees (having thousands of colonies), and the most successful producer of comb honey in the world, who is able to sell his crop direct to the trade without need of commission dealers or middlemen, and always get the best prices too, and never has any left over. Some of the best grocers in Washington, who have had honey of me this year, want me to furnish them all they will need next year. It is pleasant to feel sure, and know that the best grocers in that city are ready to take the honey I may raise. One morning I sold in the market 385 lbs., while another man within three steps of me sold only 23 4¼ sections; and another man, 20 steps away, sold but 41 4¼ sections. Their honey was as white as mine. They attended market regularly, and had their customers, while it was my only day in market. Their form and appearance of the sections made all the difference in their sale over the 4¼ sections.

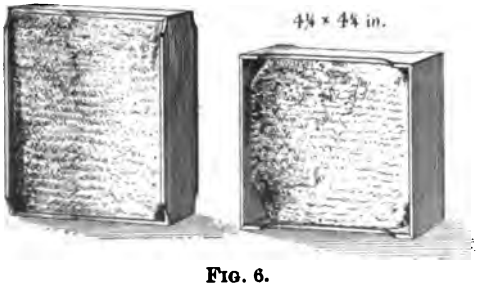

FIG. 6.

I have improved them by cutting away the ugly corners so that they can be made in one piece, and yet glassed, the same as four-piece sections, and the bees fill them out better in the corners (where they leave openings to pass through the standard 4¼ sections), as these cut-away corners permit them to pass through to the next tier of sections as if it were a single comb.

Fig. 6 shows a fac-simile of the Prize section filled with honey; also a 4¼ section. Both weighed the same, yet the proportions of the Prize section, with its deeper side, built out better to the wood, certainly appears to be better weight. In fact, that question is rarely asked, while parties are freely asking if the 4¼ sections are full weight. It is *more pleasing to eyes accustomed* to look through tall windows and tall glass in them, or into tall mirrors, or at the tall doors they pass through to see the tall grain and trees on every hand, and the tall men and women who alone are called stately and grand. As Capt. Hetherington, who designed it, and is himself a tall man, aptly says, the *great majority of humanity admire tall things*—the tall horse above the ox; the mountain more than the meadow. We light our finest churches with the tallest windows, and adorn them with the tallest steeples. Practically it is more economical in space, as 32 of them require but little more hive surface than 24 4¼ sections. The bees enter them more readily, having a deeper space to cluster to keep up the necessary heat.

Mr. C. D. Duvall, a prominent queen-breeder of Spencerville, Md., says he had a case of 32 of these tall sections on a hive, and a case of 24 of the 4¼ sections on an adjoining hive, *equally strong*, both put on and taken off at the same time; 18 of the tall sections were finished out of the 32, while only 8 of the 24 4¼ sections were filled. The 18 tall sections were worth 20 cents each, or $3.60; the 8 4¼ ones (2 cents less), 18 cents each, or $1.44. Difference, $2.16, which is more than enough to pay for a hive. He says he has used the Root hives 15 years, but my hive is far ahead of any he ever saw for comb honey, and he will discard all other arrangements as soon as possible.

Mr. S. D. Matthews, of Hamilton, N. C., bought, the last of May (late for his locality), three of my 1894 hives with these tall sections. June 10 he says: "The bees are working nicely in the sections of all your hives. I got one of Heddon's hives at the same time as yours, but there is nothing in the sections yet." Later Mr. Matthews sent me 288 lbs. of the tall sections, saying he liked my hive much the best, and wanted 100 hives for next year. He is a stranger to me, and never saw my hive before he bought it.

Mr. S. D. Matthews writes me at Atlanta:

* * * "I should be glad indeed to go to Atlanta, more especially to see you and your new hive. * * I hope you will succeed with it, as I *am sure* it *merits success*. * * I have three apiaries, 180 hives, bees in 20 Simplicities, 2 Langstroth, 150 Dovetailed, 1 Heddon, 3 Danzenbaker hives. I have used the Simplicities and Dovetailed 5 years; Heddon and Danzenbaker one season. As soon as I can I want to transfer *them all* into the Danzenbaker hives. The sections and their arrangement *just gets ahead of any hive* I ever saw, and I saw lots of them at the Chicago World's Fair."

S. D. MATTHEWS.

Mr. Robt. Wine, of Markham, Va., says he hived all his largest first swarms in Root hives, and did not get a section of honey from them; but he put second swarms into three of my hives. Each made 32 sections of nice honey—

96 sections, at wholesale price, 15 cts., $11.40—enough to pay for eight hives in the flat, while the other hives earned nothing. He says: "Hereafter I shall use only your hives."

Mr. J. F. Stock, of Kensington, Md., says, Aug. 8: "These tall sections, so nicely filled solid to the wood, *are more* than a 'square chunk' of honey; they are *handsome, exquisitely beautiful*."

Mr. Hiram Johnson, of Washington, D. C., who still owns his Michigan farm where for 35 years he kept from 100 to 175 colonies of bees, and brought to Washington 20 L. and chaff hives, last season bought six of my hives. He says one of them yielded 92 nice sections, which sold with the colony and hive, netting him $20 90 on the first outlay for him of $2.50. "These tall open-cornered sections are filled nicely to the wood much better than my 4¼ sections. They are the choicest of my honey, which I gave to my friends, all made in your hives, and packed in the half-dozen D. shipping-cases."

Hon. J. Sterling Morton, Secretary of Agriculture, of Washington, D. C., to whom Mr. Johnson gave two cases, was so highly pleased with its appearance that he sent one of them to Mrs. Cleveland, at Gray Gables, Buzzards Bay, Mass. He considered it fit to present to the first lady in the land, and he received a very pleasant acknowledgement from Mrs. Cleveland, saying:

"The honey is delicious, and the industry of the bees is equalled only by your thoughtful kindness. We are enjoying the honey immensely, and the children thank you as heartily as I do." FRANCES F. CLEVELAND.

Hon. Chas. W. Dabney, Assistant Sec'y of Agriculture, also wrote Mr. Johnson:

"That is the prettiest honey, packed in the prettiest fashion, I ever saw. I shall take it to my wife, and I know it will delight her."

One of these hives yielded 92 nice sections, and Mr. Johnson sold it so as to net $20.90 over cost for colony and honey, on an outlay of $2.50.

Mr. J. Edward Turton, Washington, D. C., says:

"I sell my honey in these tall sections at 20 cts., while 4¼ sections are selling at 15 cts. in market. My hives have made 40 to 60 sections each this very poor season, while a friend of mine has only 125 4¼ sections from 25 L. hives."

Mr. Henry Simpers, of Paris, Va., writes:

"I get twice as many of these tall sections from your hives as I do of the 4¼ sections from my Root hives. They are the finest I ever saw. I have sold them all in the yard for 13 cts. per lb. The same parties would not take the 4¼ sections at 10 cts."

Fig. 7 is a sectional view of the hive with two stories for brood-nest, about 2000 cubic inches, as used in spring to build up when a hive is crowded with bees before it is time to put on sections for white honey.

Four filled sections are shown within a section-holder in place in super, and brood-frames also of the same length, showing the thickness of the ends of the same, and the ends of the hive-cases; also the position of the cleats and hangers, with *the air-space at the ends; which shields the inner hive from direct effects of heat or cold*, helping TO RETAIN the heat of the colony needed to hatch the eggs, rear the brood, to mold the wax, to ripen and seal the honey.

This air-space also, with the openings through the hanger-cleats, FORMS *a perfect but inexpensive bee-escape, with each case or super*, that can not be lost, strayed, stolen, nor clogged, and WILL NOT *get out of order*. All the care needed is to close it up when not used; it is FREE OF COST *as a part of the hive;* while other bee-escapes, with the board to care for, cost 35 cts. for a single one.

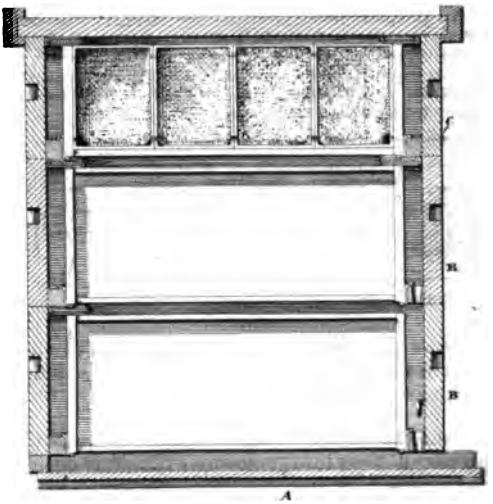

FIG. 7.

To clear an upper case of bees, open the hole in the cleat in the lower case; spread a wet piece of burlap over the frames, even with the edge of the air space, and place a strip of wood to keep it down. Set the super back in place ¾ inch to the front, so that each bee-space between the bottom-bars opens over the air-space. In a few hours the bees will all pass down, attracted by the light and air over the entrance below, when the super can be taken off without

FIG. 8.

disturbing a bee. To the beginner it is almost indispensable, while it is an immense saving of time and worry with an expert.

These *air-spaces* afford slack in the fitting of inside fixtures, so that nothing gets stuck by *dampness and affords* ample space for handling the standing frames *two or three at once*, as

easily as can be done with any hanging frame; there are *no rabbets cut in the hive, nor corners* for the bees *to daub* with propolis; it is *practically a double walled hive without extra cost or weight, or in any way changing the outward symmetry of the hive.*

All parts of these fixtures are designed to be used in any L. hive 14¼ or 14½ wide; as they are supported from the lower edge, the extra depth will afford space for top packing, so that thousands of *old hives* can be *fitted up* to use these sections, at a *trifling cost.*

SIXTEEN extra pages again.

"ARE you on the beef diet yet?" Yes, sir, both of us, and we expect to keep on it so long as we keep on improving.

I SHOULD be glad to receive suggestions as to proper subjects for symposiums that may occur during the year, in our columns. Several have been already proposed, and I should prefer to make a selection from a large list, and take as practical questions as may be—something the discussion of which will lead to real practical results.

THE date of the meeting of the Ontario Bee-keepers' Association is Jan. 16th and 17th, at Brantford, Ont. I had intended to be present at this meeting; but it follows too closely on the heels of the convention which takes place in Chicago this week on the 10th and 11th. I can not very well get home, catch up with my work, and attend the other convention, in Canada.

OBJECTION has been made by some of our subscribers to the very glossy paper upon which GLEANINGS has been printed for two or three months. By a mistake, the paper-mill sent us a paper more glossy than we ordered, and we decided to let the matter go. We shall be using now, shortly, from the next car of paper, some that will be entirely free from this objectionable glare. We always desire to print GLEANINGS on the very best of paper—that which will bring out the half-tones well, and give a general pleasing effect to the printed page.

SOMNAMBULIST, in the *Progressive Bee keeper*, after commenting on the naughty way that some people have been treating him, winds up in this philosophical way: "Young man, you can't quarrel with me, for I have learned the art of *never being hurt when hit*, as I find my fellow-creatures seldom hit those they can not hurt." The italics are mine. The possession of such an art is a valuable one indeed; and if we do not all of us have it, I believe it can be acquired. I am not very often hit; but when I am hit unjustly by a friend it hurts. When I am hit by an enemy, I am like the proverbial duck and the drops of water.

BRO. HUTCHINSON has been passing through deep waters. The serious illness of his daughter Ivy has absorbed a good deal of his time of late, from the *Review*, and he begs the indulgence of his readers. I am sure he need make no such apology, for both the numbers that were issued during her sickness have been quite up to the former standard of excellence. We have been having serious illness at our house, and for a few days we were fearful that the worst might come. Mrs. A. I. R., wife, mother, grandma, and aunt, of Rootville, and one who has ministered to us all so faithfully when *we* were sick, in the years that have gone by, was the one this time to be stricken down. She seems to be, at the present writing, out of danger, and all Rootville, from the last baby to grandpa, is rejoicing.

BEE-STING POISON, AND ITS EFFECTS ON THE HUMAN SYSTEM.

A SUBSCRIBER wants to know if bee-sting poison injected into the system in the ordinary routine work in the apiary, year after year, will not in time result in some chronic trouble in the system. I know of hundreds of bee-keepers (and perhaps it is safe to say they have been stung thousands of times), who yet seem to be none the worse for "Apis mellifica," as the bee-sting poison is sometimes called. On the other hand, there have appeared a few, a very few cases where the subject *seemed* to be unfavorably affected; but even in these, the ills and ailments of the human body are so numerous and complicated that it is not altogether clear that the poison of the bee had any thing to do with the trouble in the exceptions noted.

CALIFORNIA HONEY NOT ADULTERATED, AND WHY.

A FEW issues ago Mr. Dayton made statements to the effect that a large portion of California honey was adulterated. Rambler and Prof. Cook say that the best extracted sells in California at 3 cts. It looks as though there could be no adulterating honey with glucose, in California at least, especially after paying freight on the inferior article manufactured in the East. If there is any adulteration practiced at all, the California honey would be shipped east; then the price would be raised high enough by the freight, after the honey has got into the glucose regions, to make glucosing possibly profitable. GLEANINGS does not wish to ever conceal the facts about glucosing—that is, to try to carry the idea that it is not adulterated when it may be; but when the probabilities are the other way, it will use all its influence to show that the honey is pure.

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APICULTURAL NOMENCLATURE.

I AM glad to see the disposition on the part of bee-keepers to use shorter terms in designating various articles and operations in the apiary. Dr. Miller, in the *American Bee Journal*, in place of the circumlocution of saying "carrying bees into the cellar" would "cellar them." He does not say what term he would use when he would take them out; but reasoning from analogy he would probably "uncellar" them. Perhaps this would be carrying matters a little too far.

So far the new nomenclature includes the word "cellar," as a verb—to put bees into the cellar; "queen and unqueen" for "supplying a colony with a queen and taking one away;" "floor" instead of "bottom-board;" "queen-bar" instead of queen-excluding honey-board." I am not sure that the substitutes for the two last terms are sufficiently descriptive to be readily understood. I shall be glad to receive a list of short words that are perfectly plain as to their meaning, in place of the longer circumlocutions we are now using. By the way, in York State I heard the bee bee-keepers using the term "boxing a colony," instead of the longer term, "putting sections on a colony." They almost invariably used the term "boxes" instead of "sections." In the West I have heard the expression "supering" for putting on sections or extracting-supers.

HORLECK'S MILK; THE SUGGESTION OF LANGSTROTH.

SINCE the publication of the letter from our lamented Langstroth, referring to the similarity of milk and hot honey-water to the chyle food give to the larvæ, quite a number sent in inquiries asking what malted milk is and how it is prepared. It is a preparation known as Horleck's malted milk, and can be obtained at any of the drugstores or of the manufacturers, the Horleck Food Co., Racine, Wis. It is a white or cream-colored powder which, on being dissolved in hot water, makes a delicious drink. It is much more easily assimilated than cows' milk, and is especially adapted to children and adults with weak powers of assimilation. Mr. Langstroth, seeing the exact similarity of honey-water and malted milk to the food given to larvæ, recommended that the former be fed to the bees to see if it would not be a powerful stimulus in brood-rearing. I hope the experiment will be tried this coming summer.

Perhaps I might suggest (this is no paid "write-up") that Horleck's milk, besides being very easily assimilated, is a powerful food stimulant. Once or twice I have taken this milk after a long bicycle-run, and have felt its reviving effects almost immediately. Ordinary common cows' milk does not quite "go to the spot" as this does. We keep it in our house most of the time; and as cows' milk did not seem to agree with our boy, we have given him the Horleck preparation instead, and never with any bad results.

In a previous letter I had received from Mr. Langstroth, he told me he was using it with great benefit. Dr. Miller has also been loud in its praise, and he induced us to begin using it. At his request the manufacturers sent us a sample package, and wished us to try it after a long bicycle-run, or even to use it as a stimulant on those runs. The suggestion was made that a small vial of it be carried in the pocket; and whenever hunger or thirst begin to appear, stop at the first drinking-place and pour a little of the powder in a little water, and drink the mixture.

Perhaps some might think from the adjective "malted" it contains alcohol. It is no more alcoholic than our yeast breads.

RELIABILITY OF COMMISSION HOUSES.

We intend to have only strictly reliable firms quote the price of honey in our Honey Column. If there are any, however, who are not treating our subscribers fairly or with sufficient promptness, we hope they will inform us, giving us the facts. We have "punched up" one old firm lately, and told them that, if they did not answer letters a little more promptly, we should drop them from our list. The point is, we do not wish to have a commission firm, who are careless in their business methods, occupy space in our pages; because, if they are unfair or lacking in promptness with one they will be unfair to new customers who consign them honey for the first time simply because they see their quotations in GLEANINGS.

We are getting all the commission houses to send us an affidavit to the effect that they will neither adulterate honey with glucose or any other inferior sweet, nor will they handle any adulterated honey of any sort if they know it. So far, nearly all have subscribed to the statement. Three or four have not yet responded, but we suppose they will when they get around to it At all events, the list will be simmered down strictly to those who will agree under affidavit to handle only pure goods.

This was done, not because we doubted the integrity of the honey-men who furnish the quotations so much as because we desired to weed out any who might hesitate to give us the required affidavit. And then, too, it gives them *all* notice what we expect of them. If any of them should be discovered dabbling in honey-adulterations after they had given us their sworn statement, don't you see we should then be in a position to learn what their oath meant in court?

So far as we know, every one of the firms who quote prices for us is reliable and responible, and deal only in straight goods. I believe

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we have weeded out all who have not given entire satisfaction to their customers; but we are quite willing to continue the weeding out a little more if there is any necessity for it, and of course we shall be dependent upon our subscribers for information. We are well aware that there are some bee-keepers whom it is impossible to please, and it doesn't always happen that the commission firm is in the wrong by a long ways.

THE HOME OF THE HONEY-BEES AS IT NOW IS.

SOME time ago I promised to give you a picture showing the recent enlargement to our manufacturing plant; and in this number a bird's-eye view of something similar to what we formerly gave you will be found. The enlargement consists of the addition of a third story to the wood-working building — the brick structure shown at the lower left-hand corner (new railway-switches and platforms not shown).

The first floor of this building, 44 x 96, is devoted to the manufacture of hives and hive parts, and all heavier work; the second floor, to the making of sections, brood-frames, and other small hive furniture. In this room and in the one below will be found something like $2500 worth of newly built special automatic section-making machinery, all iron. A new automatic machine on the first floor dovetails the planks already cut into lengths, scores out the entranceways, picks them up and carries them upstairs, and hands them to a boy. This boy piles them just back of the gang-saws, where they are ripped up into rough section-strips, six at a time. They are then transferred to a couple of automatic double sanders that sand and polish the strips both sides at once. After they leave these machines they drop down in a heap in even piles, and are then picked up by a workman, and piled into a magazine of another automatic machine that picks them up, V cuts them, and spreads them out so that any "seconds" may be sorted out and put in one box, while those of first quality can be placed in another. These blanks first pass out V side up, and are then turned over by the machine so that the other side of the section can be inspected before they are finally inspected as to grade.

In other parts of the room are different machines for doing different kinds of hive work, which I'll not stop to mention.

The third floor is devoted almost exclusively to hand work — that is, the nailing of hives, frames, boxes, pattern-making, and outside incidental work in connection with the supply business.

One of the recent improvements added to the Home of the Honey-bees is some $1500 worth of new piping, and two new and larger exhaust-fans to carry away sawdust, especially the fine dust that comes from the sanders in polishing the sections. In order to turn out first-class sanded and polished work it is necessary to have a powerful blast to remove the fine dust in the polishing. In connection with this piping there are two centrifugal dust-separators, one of which is on the boiler-room roof, scarcely visible in the picture, and the other is on the three-story wood-working building. They are large cylinders terminating in an apex at the lower end, some six feet in diameter and fifteen feet high. The dust as it comes from the machines is carried by the piping to these cylinders, and by centrifugal force it is thrown against the sides, allowing the air freed of dust to escape through the center at the top, through a large hood. The dust, as it strikes the sides inside, falls to the apex of the cone at the bottom, and is then forced over to the boiler-furnaces, and fed automatically above the fire, so that a good part of the time there is no shoveling at all.

Another improvement that we have recently put in is what *we* call our "hog." It is nothing more nor less than a ponderous machine that swallows, as it were, all short refuse edgings, chews them up fine, and then discharges them into one of the pipes connected with one of the large fans. It is then carried by the piping and fed automatically to the boiler-furnaces, the same as sawdust and shavings as they come from the machines. It has been found that wood in a finely pulverized condition will go further as fuel than in any other form. The object of our hog is to reduce all edgings and waste material to a pulverized condition, so that it can be blown by a blast of air right under the boilers.

This same hog is no respecter of persons, dogs, plank, edgings, or any thing else. If an unlucky dog *should* get into its voluminous throat there would be a shower of sausage-meat, in the language of the boys, over in the direction of the boilers. To guard against accidents to human beings, the mouth, to carry out the figure, is muzzled, or protected by a guard.

If you were to visit the Home of the Honey-bees now you would see another novel feature—the making of comb foundation on the new plan, as explained in our last issue, or what we call the Weed process. As I then explained, our wax is sheeted up on bobbins, and then fed from these bobbins into foundation-mills. A pressure of the foot-lever starts the mill going, when the foundation is reeled out, and into a machine that pulls it from the mill and chops it up into lengths just right for brood-frames or sections. Mr. Weed just reported to me that the cut-off machine is not only a perfect success, but is now taking foundation from the section-mill—extra thin, mind you—at the rate of a pound a minute.

In one of our Medina papers, the *Sentinel*, for Oct. 10, 1895, appears a fairly written notice of the A. I. Root Co., and its business, as viewed

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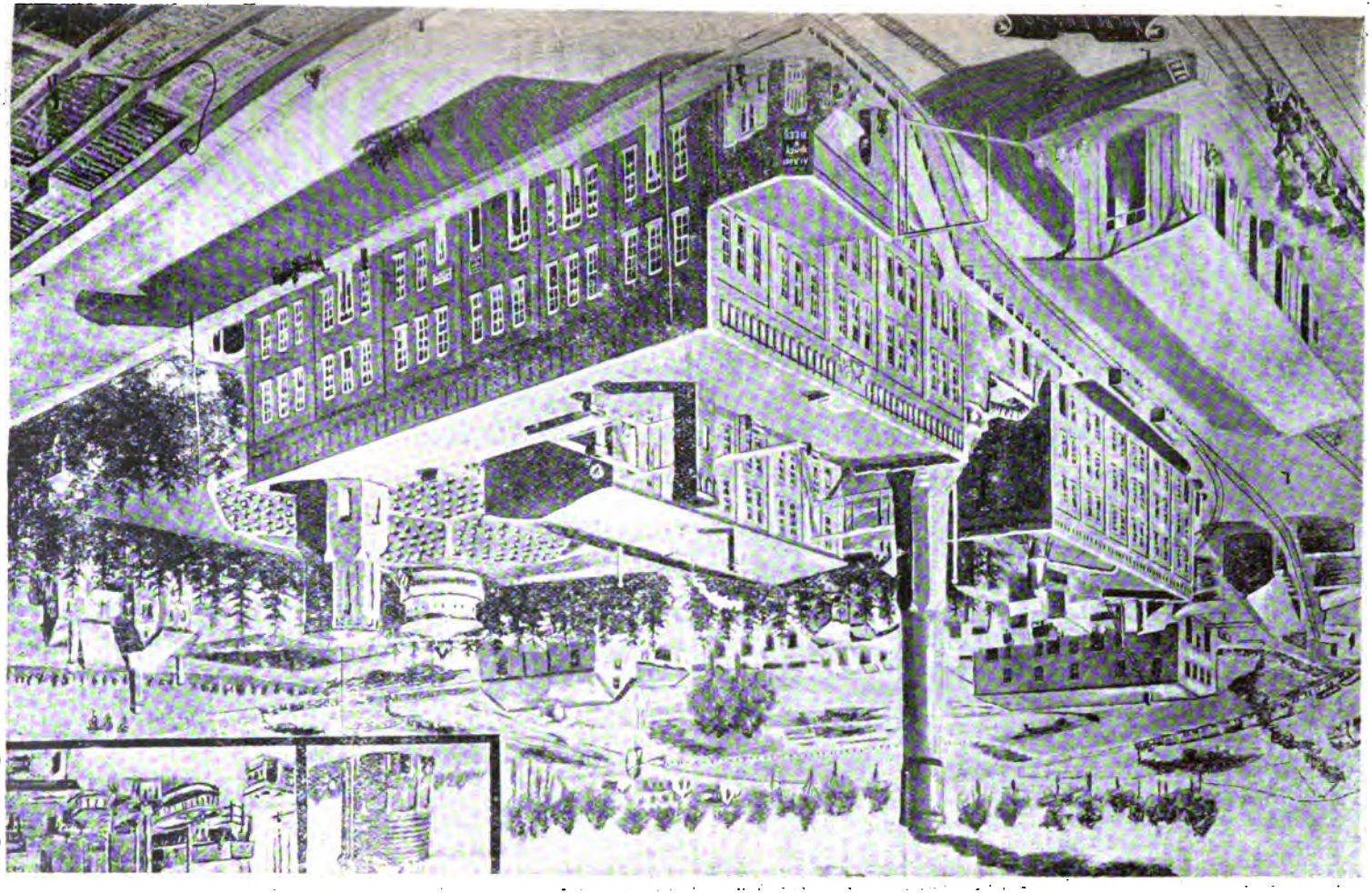

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by an outsider. As it gives some additional particulars I give it here:

THE A. I. ROOT COMPANY.

"A human hive of industry" is a sentence that tersely and well defines the mammoth plant devoted to the manufacture of bee-keepers' supplies by this noted concern whose reputation extends throughout the universe. Right in the town, and adjoining the depot and tracks of the C., L. & W. R. R., are their immense two and three story factory buildings, covering an area of three to four acres of ground. The letter U would convey a pretty good idea of their arranged connection, the frontal or base of this letter to be 125 feet, and running depth 250 feet. Six engines are so arranged as to bring motive power to bear direct where it is needed. Combined there is 225 horse-power. Buildings are lighted by their own electric-light system, and equipped with their own first-class and adequate fire-protection system. The machinery for producing the multitudinous articles turned out is the best that can be constructed, and much of it is original. Any attempt to place on paper a conception of the workings here would result in failure, even were one to have columns instead of lines at his disposal. They do business with the whole world, and would with the planets if they could be reached. This useful industry was started just a quarter of a century ago by A. I. Root, a Buckeye production from Connecticut stock that distributed itself through this part of the State, and which has left an indelible impress. Every individual in the world that owns a swarm of bees, and every bee in the universe, knows The A. I. Root Company, Medina, Ohio. Their works are manned by a force of 100 skilled employes, who are busy every working day in the year, and often, in the press of season, work far into the night. Fully $40,000 in wages are annually disbursed. They have their own printing-rooms, from which issue carloads of catalogs which go out all over the globe, and print 10,000 copies of their semi-monthly magazine, GLEANINGS, devoted entirely to bee culture. A. I. Root has advertised Medina to the world, to all nations and tribes; and they spend thousands of dollars in advertising in various periodicals devoted to kindred interests. There is no other similar factory in existence. It causes the admiring visitor to wonder. In itself it is a wonder. The amount of American inventive genius that one can see under The A. I. Root Company's roof is simply marvelous. The name, fame, and successes of this concern are almost beyond conception. It is remarkably and strangely co-incidental that this plant in its entirety, its workings and management, should so much resemble that for which it is laboring—the bee-hive. Medina owes a a debt of gratitude to this enterprising concern. It has been a tireless machine, throbbing its energies, and aiding materially at all times the general welfare of Medina.

DOCTORING WITHOUT MEDICINE.

LEAN MEAT AND NOT FAT MEAT.

After I had got to feeling real well, and was eating zwieback and the health foods pretty freely, I told Mrs. Root there was no further need that she should be so very particular in cutting out every little bit of fat so as to give me just the pure lean meat as she had been doing. She remonstrated, and declared I would get a setback if I went to eating greasy meat or greasy food. But I finally induced her to give me just one meal of nice *fat* juicy steak. As I had been dieting so long on pure lean meat I rather enjoyed the change. But a dinner of pork and beans, cabbage and squash, could hardly have upset my digestion more. I had one of my old sick-headaches, and kept awake a good part of the night with disturbance in the digestive apparatus; and I awoke with a headache next morning, and an entire loss of appetite. I think this is almost the only time when I have sat down to a meal, in the whole six months I have been dieting, without a good healthy relish for my meat. At breakfast I felt as if I could not eat any thing at all. You may be sure, however, I had the pure lean sirloin steak, and not a bit of grease about it—not a bit of butter, not a crumb of zwieback, nor *any thing* except the lean meat. As soon, however, as I had chewed very thoroughly, and swallowed a few mouthfuls, my appetite began to return. The outraged stomach and bowels indicated their approval of the clean, easily digested food. The bad feelings gradually subsided, and in the course of 24 hours of strictly lean-meat fare, I came around to my normal state. Since then, whenever there has been any slight disturbance of the digestion, I have come back promptly to the clean meat, with *nothing else;* and there is no question about it in my case, that this treatment is sure and unvarying. But it took fully three months of a steady meat diet to get my whole system into natural working trim of the best sort.

Now, the question comes in right here, and it is the whole point of my little story this morning: Can headache, and other troubles that follow along the line of indigestion, sour stomach, distress of the bowels, etc., be cured in this way with *other* people as with myself? Will the beef diet, or this plan of "doctoring without medicine," give relief generally? I wish the readers of GLEANINGS would try it, and give me a postal-card report. The next time they have sick-headache, instead of trying the starvation plan (that is a sure thing with so many), just eat pure lean beef. This will give you strength to go about your work, and will be less violent than entire fasting. If your headache proceeds from a cold, my impression is that the lean meat will be a help even then; for my belief is that most colds are primarily caused by disordered digestion. An *ordinary* sick-headache ought to be cured entirely by a lean-meat diet for 24 hours, or, say, whenever you feel a dislike for food of any kind. Instead of toast and tea, which is so often recommended, use just the lean meat. A little strong tea might in some cases be a benefit, for tea of itself will often cure some forms of headache caused by indigestion. In my case, however, whenever I have this sort of headache I seem to be overburdened with fluids in the stomach and bowels, and I get along better without a particle of drink of any kind at mealtime. Three hours after having eaten your dry meat, you may drink a cupful of hot water, just as hot as you can get it down by sipping it with a spoon. Even if you feel a repugnance to it, you will find, by the time you have taken half a pint, it has brought a feeling of relief. Please tell me briefly if it is not true, that I may be better able to guide those who are wishing me to guide them in this matter of health.

Just now I am discussing, mind you, the cure of sudden and acute diseases—something that can be cured, probably, within 24 hours or less. Now, when you find your system responds to this meat treatment, *then* you are ready to commence the cure of such stubborn and chronic diseases as rheumatism, asthma, and even consumption—diseases that will require absolutely pure lean meat for several weeks or months, or in bad cases it may be a couple of years, or the rest of your life; for it is surely better to live, and enjoy tolerable health on a restricted diet, than not to live at all, or to live a life of suffering and pain. With such a disease as diabetes, and others of kindred character, you may be obliged to hold to a strict diet all your life. One who changes suddenly from a mixed diet to one of pure lean meat will probably have trouble in the outset with constipation. With myself, however, at the present time I have no trouble of this kind at all, even on a strictly

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lean-meat diet. Nature is ready to do her part shortly after rising in the morning, almost as promptly as the rising of the sun. At present I do not know of *any* other food that can take the place of the lean meat, for it contains neither starch nor sugar—the two substances that produce most of the fermentation, sourness, and gaseous disturbance in the bowels. All physicians, I believe, now agree, also, that lean meat is digested almost if not quite entirely in the stomach, thus relieving the bowels so that they may become entirely empty, and recover their normal state.

ZWIEBACK MADE OF WHOLE-WHEAT FLOUR.

Dr. Miller asks, in Straws, why this can not be made wholesale by the bakers. Doubtless it will be as soon as there is demand for it. The Battle Creek people do make it; but, to tell the truth, our people like the home-made rather better than that we buy at Battle Creek. May be the Battle Creek folks have not any whole-wheat flour equal to that made by W. B. McKenney, Abbeyville, Medina Co., O.

HOME-MADE ZWIEBACK, ETC.

Mr. A. I. Root:—We are glad to notice good progress with you in the lean-beef cure. In your notes on Battle Creek you did not tell us whether it was yeast bread of which zwieback is made. Thirty years ago I learned at Dr. Jackson's "Our Home on the Hillside," Danville, N. Y., how to make rusk, which in substance is identical with zwieback. It is made of whole-wheat flour and water, the dough thoroughly kneaded, then rolled out, cut into strips, or with a biscuit-cutter, and baked in a quick oven. It is broken in pieces, placed in a pan, and returned to a slow oven until all the moisture is dried out. It is then run through a hand-mill, and served with cream, or milk and cream. If zwieback is as good as this rusk, then surely it is mighty fine living, and it doesn't cost 10c a pound. Anybody can make it who will. Sixty pounds of wheat costs sixty cents. Made into zwieback it will cost the consumers $6.00.

By the way, I must tell you of a discovery we made last summer. The mill from which we got graham flour shut down for repairs. When our graham gave out we tried a small lot made with our hand-mill. It did so well that we continued it. We wash and dry out the wheat before grinding; and for every purpose of whole-whole flour it is perfection—superior to that milled by the roller process. Now we don't go to mill for graham. Our mill is a Wilson.

Pure beef diet, without suitable and efficient means of chopping the meat fine, is like the play of Hamlet with Hamlet left out. I have used an Enterprise meat-grinder for five years, and know the excellent results from its use. In order to use all of the lean parts of a cut weighing 8 or 10 pounds, one has to stop and clean out the perforated plate several times. There is an implement called a steak-greith (sold for 50 cents by Alling & Lodge, Madison, Indiana) which fills the bill exactly. With this, one can utilize all the lean parts, chopping it as fine as the grinder, and in only a little more time.

JOHN CADWALLADER.

North Madison, Ind., Nov. 24.

Working Bee.—"A fellow came around here hunting for our nest the other day."

Queen Bee.—"What did you do?"

Working Bee.—"Those of us who happened to be around at the time gave him a few points."—*Truth.*

Peace on earth, good will toward men.

SOMETHING FROM GEORGE O. GOODHUE, DANVILLE, QUEBEC, CANADA.

Our older readers will, without any explanation, be glad to receive any thing that comes from the pen of George O. Goodhue. We might explain briefly to the newer ones that friend Goodhue paid a visit to your humble servant, A. I. Root, away back when the foundation stones were being laid for the first brick building at the Home of the Honey-bees. When everybody else—or at least *almost* everybody else—was afraid to loan money toward the enterprise, friend Goodhue supplied the needful funds, without even asking security. In fact, he refused to accept any thing except a simple piece of paper as a memorandum of the money he advanced. He had faith in the Home Papers and in the Home teachings; and even though he was not at that time a professor of religion he had faith in God, and it was my pleasure to tell him so. He has since come out before the world as a humble follower of the Lord Jesus Christ and as one of his ablest teachers; and it is because "peace on earth and good will toward men" seem to shine forth from every word he utters, and every line he writes, that I have seen fit to choose the little text for the title of my talk to you to day.

First I submit entire a private letter, written, as you will notice, on New Year's day. He says this letter was not *written* for publication; but I know he will forgive me for using it thus when I assure him I believe it will do good.

Dear Mr. Root:—I take the liberty of sending you a copy of the Montreal *Witness*, thinking it may be of interest to you at this time when so much has been said and done to jar upon the sensibilities of well-wishers of the race in both our countries. Perhaps one of the articles on the 13th page, entitled "The Crime of the Century," may have a little added interest to you as coming from my pen. I do not send it, nor this letter, for publication, but wish to say that our prayers join with yours that wisdom and kindness—in fact, true, genuine Christianity—may yet prevail in the councils of both nations.

My Christmas was made happier by a new photo of our dear Helen Keller and her estimable teacher, which reached me on that day; and the new year opens more brightly because of a kind, loving letter which came to me this morning from Helen. She is now passing her second winter in New York city, at the Wright-Humason school, where she has made astonishing progress. Besides arithmetic and physical geography, she is studying German, French, lip-reading, and voice training. When I think of her wonderful lip-reading, it seems almost an added proof that the age of miracles is not past. Just imagine the delight with which she told me in one of her letters last summer, that, by putting her fingers upon her little brother's and sister's lips she could understand what they were saying! Don't you think the dear fingers often get kissed when in such a tempting position?

I was at the Kindergarten for the Blind at Jamaica Plain, Boston, two years ago, and greatly enjoyed my visit there among the little blind children. Among them was little Tommy Stringer, whom you and many of your readers so kindly aided Helen in placing there. He is a very happy little fellow, and has much improved since his entry there, and the good work of improvement is still going on. Another dear child I saw was Lizzie Robin, who is deaf and blind, the same as both Helen and Tommy. Such a quick, active, and altogether charming little chatterbox! "I will show you how Tommy *walked* when he first came here," she said to me with a funny, roguish look on her bright, pretty face, and down she got in a trice upon all fours on the carpet, and commenced a

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lively creeping *backward*, clear across the room. You couldn't have kept a straight face to save your life had you seen her and heard her merry laugh. Poor Tommy had early learned through sad experience that it was safer to "sail *stern foremost;*" and although past five years old when admitted to the kindergarten, that was the "way he walked," as Lizzie said. When I saw him a little later that afternoon come walking erect as a soldier into the schoolroom, get his kindergarten exercise, and immediately commence work, I felt renewed thankfulness to all the dear friends who had made it possible for this soul to be rescued from its worse than Egyptian darkness, and be brought into the marvelous light of intelligence and education, with all its blessed possibilities. I inclose you pictures of Lizzie and Tommy as they appeared when I saw them.

I am afraid I am forgetting what a busy man you are, by spinning out this long letter.

GEO. O. GOODHUE.

Danville, P. Q., Canada, Jan. 1.

Of course the readers of GLEANINGS will be interested in what friend Goodhue tells us about Helen Keller and her deaf and dumb and blind comrades. Yes, it is indeed wonderful; it is one of the encouraging wonders of the present age, to realize that one whose misfortunes it would seem almost place them beyond the possibility of education should, by intelligence, diligence, and painstaking care, become intellectual wonders. Everybody has said, you know, that Hellen Keller was endowed by nature with something more than often falls to the lot of humanity; but now it transpires that Tommie Stringer and Willie Robin too promise to come something near Helen herself; and then it is that we begin to understand the great lesson that God himself is teaching us through these little unfortunates—that almost any child may be good and great by proper teachings and environments. But now for that other question—war between two great peoples.

After reading the *article* (from the *Witness*) alluded to, it meets my approval so well, and seems to be so exactly what GLEANINGS *ought* to say at a time like this, that I have decided to give it *also* entire:

THE CRIME OF THE CENTURY.

Some of the most deplorable of the many far-reaching consequences of the President's ill-advised message have as yet been scarcely felt, but are none the less sure to come unless the Christian people of both nations speedily unite like true brothers in frowning down this wicked effort to set them at variance.

There will be no war between the two great Christian nations of the world. I say it reverently, but fully convinced of its truth—God will not permit the light of the world, the Bible, to which both nations owe all their wonderful greatness—to go into such obscurity as such an unholy conflict would entail.

Disastrous as has already been and still may be for a time the financial loss resulting from this message, it pales into utter insignificance beside the far greater loss resulting to the American nation through having so willfully sinned against its mother country, and throwing away for an empty bauble the priceless trust of all of England's real intelligence and conscience. No one in England pretends to justify her action toward her colonial daughter in 1776; and while her sympathetic reponse to the periodical outbursts of Fourth of July "yelloquence" has been a silent one, and perhaps almost unconscious to herself, still it has been none the less real, and America has continually benefited through it in a thousand ways. This kindly feeling has deepened and strengthened as the years have sped on their course, entirely healing, in so far as England was concerned, the breach caused by the events of 1776; and up to the time of the issuance of this message England looked with affectionate pride upon the great nation speaking its language and ruled by those whose blood came from her veins. To what extent suspicion and distrust will now take the place of esteem and priceless trust time alone can determine.

To illustrate more fully, by contrast, some of the far-reaching consequences to which I at first referred, let us suppose for a moment that America had joined the assembly of nations at the Bosphorus, and had said to them, "We are here as England's ally and friend to compel this slaughter of Armenian Christians to cease, and are 'fully alive to the full responsibility incurred, and keenly realize all the consequences that may follow.'" That such action would have resulted in war I do not believe; nay, rather the peace of the whole world would never have been in so sound a position as for these two Christian nations to have thus joined hands in refusing to longer endure "a supine submission to wrong and injustice" to the Armenian Christians.

Would any one attempt to calculate the immeasurable impetus which such an alliance would have given to all that makes for the best welfare of the whole human race? Remember that the whole conscience of Germany, France, and Russia, and of the other nations, would have been overwhelmingly in their favor, and that conscience would have paralyzed any threatening arm sought to be raised against them. "When a man's ways please the Lord he maketh even his enemies to be at peace with him." Would he do less for a nation?

How long well-wishers of the race have vainly scanned the oft-troubled horizon of the Old World, hoping to see indications of a settled peace which would lead to a general disarmament—what an aid to this movement such a union under these circumstances would have been! What an impulse such an alliance would soon have given, not only to the success of foreign missions, but also to the important work of Christianizing our careless heathen at home in both countries. "See how these Christians love one another!" would have been an open sesame to countless millions of the gold and silver which ought now to be in the Lord's service, as well as to the hearts of millions who should enroll under his banner for active service.

Humanly speaking, this all appears to have been lost: yet is it? And must we in pursuance of our illustration attempt to measure the contrary effect—the untold loss arising out of this lamentable action, and accruing to all beneficent objects, including the failure to rescue our Armenian brethren whose blood still cries from the ground against America as well as against England?

Were we to attempt to do so, without putting our whole trust in God, whose kingdom shall surely prevail in his own good time over all the earth, we might well grow sick at heart in utter despair. But the omnipotent Jehovah lives and reigns, and ever "moves to his great purposes unhindered by aught that seeks to thwart his will." In this shall be our trust.

When I attempt to decide what should be done between great nations like Great Britain and the United States I feel so overpowered by the fact that I am so ignorant, comparatively, especially in the great political and financial matters, that I hesitate to say any thing; and yet I am sure friend Goodhue is right; and I am sure, too, that the text at the head of this talk is safe for *nations* as well as individuals, as friend G. expresses it.

The pleasure of my trip up Lookout Mountain was greatly marred by the constant reminders of the bloody conflict between America's own boys in that "battle above the clouds," as it has been termed. I was talking with utter strangers; but whenever reference was made to it I could not help giving utterance to the thought, "Oh! why did our people get into such a state of affairs as to imagine that such bloodshed was needed, or that it could ever be possible *God should be pleased* to see *neighbors murdering* each other?"

In one sense, perhaps, it was necessary that there should be bloodshed Let me give you an illustration which I have several times alluded to:

When I was a boy in my teens there was a rebellion in my school. I restored order and tranquillity by—may God for give me, but, to tell the truth, there was at least a *little* shedding of blood; and that, too, the blood of one of my *own pupils*. As the matter stood just at

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that time, *perhaps* there was no other way. I shall not now undertake to decide; but had I been at that time, say during that whole winter's term of school, seeking guidance and direction from *my Bible* and from *Christ Jesus*, there never would have been any *need* of such a crisis. It was not my fault just *that day* that one of my pupils told me face to face that I was not man enough to make him behave himself; but it *was* my fault during the weeks and months—yes, from the very *first week* of that school till the last. I was doing that which I knew no one who holds the sacred office of teacher had any right to do. Many may say it was a *little* thing; but downright *sin* is never a little thing. I *knew* I was sinning. If my good old mother had at that time looked into my heart, I should have been *ashamed* of the thoughts that were lurking there. May God forgive me! Well, now, it does not always need a *mother's* eye to read a man or to read a teacher. My pupils lost their respect for me when I might have gained and *held* their respect and esteem. Now for the lesson:

If there *is* any cause of war between the United States and Great Britain, then both England and the United States should be ashamed of it; and it is not too late to mend matters even now, without war or a *thought* of war. This standing by our flag, and this Fourth of July spirit of patriotism, is all right providing the patriots are *Christians* first and patriots afterward; or, in other words, if both England and the United States are seeking *first* "the kingdom of God and his righteousness," most surely should there be no faint thought of even *trying* to see who is greatest, or discussing the matter in regard to war. In our bee-keepers' conventions, when we meet on such exceedingly friendly terms and friendly ground, the very thought of such a thing is painful. Why! instead of lifting a finger against these friends, I would turn around and fight for them. They might be mistaken, but they could *not* be vicious and selfish.

A few days ago we were talking about a quarrel over a division fence, where pistols were used. I said, "In such a case it is far better to get shot than to shoot somebody else." If a burglar gets into one's house in the night, of course this would alter the case entirely. I am talking about quarrels between *neighbors*—neighbors whose farms are separated by only a line fence. And is it not true, dear friends, that *England* and *America* are separated by only a line fence? Should there be a quarrel, it would be a quarrel between neighbors. During my recent visits in the South in Florida and at Atlanta I have had exactly the same feeling. These people are not only our neighbors, but exceedingly kind, unselfish, and self-sacrificing neighbors. Should I stupidly forget at some future time the pleasant relations that have existed between us, it would give me exceeding pain. Let me illustrate:

While stopping at one of the homes in Florida, when I arose in the morning some forty or fifty dollars were gone from my pocket. Just as soon as made the discovery I decided in my own mind that I should *never mention it;* if gone, it was by my own stupidity, or some tramp thief had been in my room while I slept and I would not give pain to the good friends who were entertaining me, even if it cost me *many* times the sum in question. After I had fully decided what to do, however, I found my wad of money kicking around under my feet.

Now, there has been a growing feeling of friendship, of peace and good will, not only between the North and South, but between England and America. This feeling has at least been growing among a great *part* of our people, that, if there is any shooting to be done, we should prefer to be *shot* rather than that a weapon should be even pointed toward these good friends of ours. If money is lost, I am sure I am right when I say there is a feeling that we would sooner loose a *good round sum* rather than wound the feelings and sensibilities of those whom we know are so much above taking that which does not belong to them that it is utterly impossible for any trace of *selfishness* and *greed* to lurk in their hearts. We know this is true of *individuals*. Now, I do not know about nations; but I *do* know, I think, as friend Goodhue says, that what is true of people is true of nations.

ARTIFICIAL HONEY.

SELLING RECIPES.

It is some time since recipes for making honey have been advertised; and, in fact, this whole principle of selling recipes for a certain sum of money—25 cts. or $25.00 as the case may be—has been so nearly played out we have given but little place to the matter. Here is one, however, sent by one of our contributors. It seems to be right in our line, so I think I will give the advertisement in full.

THE WAY TO MAKE MONEY IS TO MAKE HONEY!

We always have honey at our house, eat it three times a day. Make it ourselves. As good or better than bees' honey; good tasting and perfectly wholesome. Costs only one-third as much. Honey sells readily everywhere at from 15 to 20 cents per pound. You can make it in almost any quantity in FIVE MINUTES at a cost of only 6 or 7 cts. per pound. Ingredients to be obtained at grocery stores. This recipe is worth to any family $50 every year.

IT'S A MONEY-SAVER.

I sell the recipe with full directions neatly printed for only 50 cents in 1 or 2 cent stamps or cash.

AGENTS

can sell this recipe to nearly every family, as almost everybody likes good honey; and by showing them the honey you can make with this recipe they will buy at once. I allow agents half the money they sell recipes for. It will pay you five thousand dollars per year for the next few years, if you hustle.

Say, my dear friend, if you fail to see money in this, I am sorry. I tell you candidly and perfectly honestly that I am offering you

A MIGHTY GOOD THING. PUSH IT ALONG.

I have not secured an agent in your county, or you would not have received this circular. First come, first served. Act quickly, or you may be too late.

If you will send me 25 cents within 10 days, and will also distribute a few circulars among your friends for me, I will send you full instructions how to make the honey; and if every thing is not absolutely just as I herein represent I will gladly return your money.

Send 25 cents for the RECIPE, and a test will PROVE that I am indeed your friend. If you want to make money easily, honestly, rapidly, address at once

H. M. DANIELS, Akron, Ohio.

Well, the above is quite taking, now, isn't it? We sent the 25 cts., and, instead of distributing circulars, as per request, we reprint the whole thing here in GLEANINGS. That is right, is it not? for our readers are all our "personal friends;" and while we are in a friendly mood I think we might as well give you the recipe right out. It will save time and postage and *money*. My impression is, that the same thing is found in Dr. Chase's recipe-book, and perhaps in many other recipe-books as well. Here is your splendid honey, made in five minutes, at a cost of only 6 or 7 cts. per lb.

SPLENDID HONEY.

To make 35 pounds: Soft water two quarts; white or brown sugar, 20 pounds; pure bees' honey, three

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pounds; cream tartar, 80 grains; essence of roses, 24 drops. Mix the above in a common kettle, let boil five minutes, take it off, add the white of two well beaten eggs, and when almost cold add two pounds of bees' honey. If made for family use, only a small quantity may be made at a time. Keep in cool place.

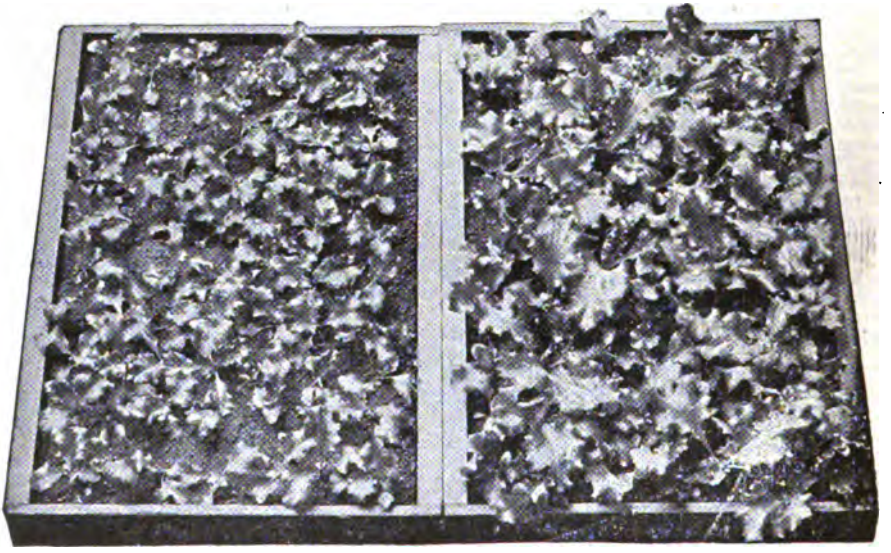
This honey is equal in every respect to that made by bees and costs only one-third.

Honey suitable for every-day use is made as follows: Good common sugar, 5 pounds; water, one quart; gradually bring it to a boil, skimming well; when cool, add one pound bees' honey and four drops of peppermint essence. If you desire a better article, use white sugar and one half pint less water, and one-half pound more honey. If you wish to give it the ropy appearance of bees' honey, put into the water one-fourth ounce of alum.

STARTING GRAND RAPIDS LETTUCE.

Now is the season for sowing the seed and transplanting the plants. If you have a greenhouse or hot-bed, and are interested in gardening, I would say, sow some seeds, at least in the house. Get some trays or shallow boxes by cutting common grocery boxes in two in the middle, or nail them up, as you choose. If you expect to work with hot-beds and greenhouses, you had better make them of a size so that a certain number will go under the regular sash; 3 ft. x 16 in. is a very good size. Two inches of dirt is enough to start small plants, and we have got along very well with only an inch and a half. The latter makes them lighter to handle. Get some fine old well-rotted black manure, some sand, and some good garden soil. Some swamp muck is very nice if you can get it. Mix all together by passing through a sieve, and fill your boxes. Pat it down with the board so as to be level and smooth; then sprinkle the seeds over the surface of the soil so you will have, say, half a dozen seeds on every square inch of surface. Sift a little more fine dirt over them so as to cover the fine seeds. And now if you can get it I would put on some fresh horse manure from the stables, without any straw or bedding. Pound it up fine with a strip of board or piece of lath. Sift this fine top dressing all over your boxes. One seed-box will be all you will need, and you will probably have seedling plants to sell to your neighbors besides. Sprinkle the surface with water; set the box in the window, and keep them at a temperature of from 40 to 70 degrees. Lettuce is very hardy; and even if the ground should be frozen a little over night it will not hurt the plants. When they get the second and third leaves on, then you are ready to transplant. I would have a spacing-board like the one shown below. Prick out the plants and put them in boxes like the first, so as to be 2 inches apart from center to center. When the plants get to crowding again, then they must either go outdoors in a hot-bed, or be set still farther apart in a box with soil a little deeper. Below is a picture of some boxes of lettuce ready to go out into the larger bed.

SPACING-BOARD.



SURFACE WATERING AND SUB - IRRIGATION WATERING IN CONTRAST.

The way we sub-irrigate boxes of plants like the above, is to simply set them in a larger box having, say, an inch or less of water in the bottom. The bottoms of the plant-boxes, of course, are to be made of narrow strips of wood with cracks large enough to let in the water. The watering is done by setting box and all right down into the shallow box of water till the water has soaked up through to the surface. Never water the foliage at all. The above cut is from Lettuce Bulletin No. 61, mentioned in our last issue, and shows the advantage of sub-irrigation over the ordinary way of sprinkling or pouring the water on top of the plants.

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ALFALFA—ALL ABOUT IT.

During my visit at the Atlanta exposition I ran across a department where all of the government bulletins pertaining to agricultural matters were nicely displayed, and I had quite a little talk with the official in charge. He informed me that there had been more call for a government bulletin in regard to bee-keeping and honey-producing than on almost any other one subject, and as yet nothing has been provided. Ernest told you in our last issue, however, something in regard to the good work our friend Frank Benton has been doing. Doubtless this will soon be in the hands of all of you. I spoke particularly with him in regard to Farmers' Bulletin No. 31, in regard to alfalfa. This is the most complete, comprehensive, and practical thing on the subject I have ever got hold of. It is especially valuable to any one who has contemplated trying alfalfa on his own grounds; and I was greatly pleased to note that alfalfa can be grown on a great variety of soils, and in various kinds of climate, if you are only careful to keep it free from standing water. Alfalfa can not stand "wet feet." Have your land thoroughly underdrained or thoroughly subsoiled, or, better still, both, and you can make alfalfa grow almost anywhere; and if it is well

A YOUNG ALFALFA-PLANT.

ALFALFA-PLANT SEVERAL YEARS OLD, AFTER HAVING BEEN CUT OFF REPEATEDLY.

protected from water it will survive very severe if not the most severe frosts and winter weather. After it once gets thoroughly rooted it will, if I am correct, stand more drouth than almost any other plant known, unless, indeed, it is its near relative, sweet clover.

I was especially pleased with the correct engravings made of the plant; and the Department of Agriculture has kindly loaned me these drawings. Compare them with some pictures of alfalfa shown in our seed-catalogs, and you will note the difference. We do not take the space here to make extracts from the bulletin, from the fact that it will be mailed free of charge to any citizen of the United States who cares for it. Simply address a postal card, asking for Farmers' Bulletin No. 31, on alfalfa culture, and you will get it. Here is what one of the government officers has written to me:

Mr. Root:—If you will furnish the names and addresses of persons to whom you would like to send a copy of the alfalfa bulletin they will be mailed from this Department. It is very gratifying to learn that this publication is appreciated by the members of your firm, who are, of course, fully competent to pass judgment upon it.

Respectfully,
GEO. WM. HILL,
Chief Div. of Publications.

U. S. Department of Agriculture,
Division of Publications,
Washington, D. C., Nov. 14.

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GARDENING DURING THE LATTER PART OF JANUARY.

Of course, all our gardening in our northern States in the middle of the winter will have to be done under glass, and mostly in a greenhouse. Hot-beds can be prepared and worked in during occasional pleasant days. But with a greenhouse, even a little cheap one, you can put in the time very profitably, and I think very pleasantly, unless, indeed, the business is overdone in your locality; but that is not often the case, especially if you are near some town or large grocery—the larger the town, the better.

We have spoken on another page about growing lettuce; but if you have room, a great variety of seeds may be planted. Asparagus-roots may be placed under the benches. Bush beans have always paid us well for the space they occupy. Beets may be sown quite thickly, and transplanted when they have the second or third leaf. We have always found early beets, started under glass, profitable; that is, there is always somebody who will want them. If you have no cabbages in cold-frames to winter over, now is the time to sow your Jersey Wakefield cabbage seeds Make the ground rich with old hen manure pounded up fine and sifted in, and then sift slacked lime over the bed and rake it in. This will ward off clubfoot, and give your young plants a tremendous boom to start with. When they start out strong and rank they make big plants, and head up quickly to good size. My experience is that you can not give cabbage too much manure. A few forcing carrots may be profitable. Start cauliflower the same as cabbage; and whatever you do, start some White Plume celery. Don't put in very much so early, for there is danger of its running up to seed unless it is watered well and kept growing just right. Start corn salad if your customers like it, and don't forget watercress. This is about the easiest plant to grow under glass, if you give it water enough, of any that I have ever worked with.

You can try a few cucumbers if you like; but you have got to have a warm house, and you will have to learn the trade before you make a success of it. The same with melons. Onions are easy to grow: and if your house is poorly heated, and every thing freezes up, it will not hurt the onions. Onion-sets of all kinds grow nicely with any sort of protection; but the American Pearl brings the biggest price. Of course, you want some parsley to mix in to set off other things, and for flavoring.

American Wonder peas are as hardy as the onions. You can grow them when you can not grow any thing else. Just for the fun of it you might put in a few of the new flowering peas, Burpee's Cupid. They can be grown in pots, and will often blossom when up only four or five inches high. Peppers are so sensitive to cold that you had better not start them until a little later unless you have excellent protection from the cold.

Get in your Thoroughbred potatoes which you got as a premium, if they are not already planted and up. If you can get some big old roots of rhubarb (take them up with a good big lot of dirt adhering) you can have some delicious pies from new fruit along in February. Put them under the benches with the asparagus; but you can raise it profitably in almost any cellar, without having any greenhouse at all. Just plant the roots in the warmest place you have. Give them water, and it will not make much difference whether you give them any light or not. They will shoot out great long brittle stems of a beautiful reddish pink, as handsome as a peach, and almost as delicious when properly cooked.

Radishes are the easiest thing in the world to raise, and freezing up does not hurt them much. Wood's Early Frame and Scarlet Globe are the kind you want to grow in the winter. If you have customers who will pay you a cent apiece for all you can raise in February, you can get rich selling radishes. Spinach is also exceedingly hardy. It will oftentimes bring as much per pound as lettuce. Last, but not least, start some tomato-plants. You want a few nice ones to show to visitors. If anybody wants to give you a nickel for the plant, pot and all, let them go. We get that price for a good many extra nice large plants just by putting them out in sight where the people see them as they drive by, say during a nice warm day in April or May. You see, if the plant is already rooted in the pot you can set it outdoors pleasant days, and carry it in nights; and one extra large early tomato-plant will give a family quite a taste of tomatoes a week or ten days before anybody else has any.

Now, all these things I have mentioned can be *started* profitably in the month of January—that is, start just a few of each. If you haven't a greenhouse, have some boxes in the window. If you cannot afford to keep a fire all night, carry them down cellar when it is very cold. With a little pains you can fix up a small window in the cellar so as to let them have the sun in the middle of the day, and still be secure from frost. Have the window fronting the south, and have a door to shut over it during very cold nights. You can fix a door something like the hatchway of a cellar; or if the hatchway of your cellar fronts the south, just have a sash made to fit in the hatchway right under the regular wooden door. When it is very cold, let down the wooden door over the glass sash; but whenever the weather permits, swing this wooden door open to give your plants light. Such a hatchway, with some sort of little second-hand stove, back a little inside of the cellar, will make quite a pretty little greenhouse for one of the girls or boys to play with. I have not said any thing about flowers; but you see if the women-folks do not "catch on" and get some enjoyment *also* out of your "winter gardening."

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

CELERY UNDER GLASS.

We are getting beautiful celery in our greenhouses, on the plan given on page 642, Aug. 15, 1895, bleaching by simply wrapping brown paper around the stalks, said paper being held in place by very light rubber bands. The bands stretch as fast as the celery grows. It sells readily at 15 cts. per lb.

BEST OF ALL BEANS.

After traveling extensively through Florida, and conversing with bean-growers, I find these are, as a rule, given the preference for green beans for shipping to the Northern markets. We offer for sale seed of our own raising, true to name, and sure to germinate, at the following low prices: Eighteen cents per pint, 30 cts per quart, by mail, postpaid; by freight or express, $1 per peck; $3.50 per bushel; 5 bushels, $15; 10 bushels, $25.

BURPEE'S EXTRA EARLY POTATO, ETC.

In our last issue we gave the price of this potato at 75 cts. per bushel. As nobody has at this date, Jan. 9, taken up with our offer we hereby advance the price to $1.00 per bushel, the same as the Sir William. We notice Burpee's price, by his new catalog, is $2.00, and we have not seen any quotation any lower. By the way, Carman No. 1 is also listed

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at $3.00 per bushel. Until our stock is sold we will make the price $1.50—stock limited. The general catalog price of the Freeman is $1.50 per bushel; *our* price is 75 cts.; Rural New-Yorker, $1.75 per bushel; our price, *40 cents*.

OUR PRICES ON SEEDS.

Please compare them with the prices you find elsewhere, and see how close we have figured our profits. In regard to the quality, we are planting the same we sell every day; and just the minute there is a thing wrong we expect to find it out long before anybody else. Where a better grade of seed is offered at a higher price, we have not hesitated to pay the grower the price when we were satisfied the seed was really superior. Notice the low prices given on all of the clover seeds; and it will be time to begin sowing the clover now in a very few weeks.

THE SIR WILLIAM POTATO AS REPORTED BY THE OHIO EXPERIMENT STATION.

In Newspaper Bulletin 154 we find the following:

Sir William. Some have thought that this variety has been overrated; but at the Station and sub-stations it has made a record second to none. It easily ranks with the most prolific varieties, and excels most of them in table qualities. All things considered, it deserves a place near the head of the list.

The Sir William gave a yield of 308 bushels per acre at the Central Station, which was the highest of 70 varieties tried, with the exception of one, the Koshkonong, which was 309. At the two sub-stations in different localities it also ran very high. See special low rate on the Sir Williams, given in our last issue. This is the potato, it will be remembered, that W. I. Chamberlain, the author of our book on tile drainage, has recommended so highly and grown so extensively. It is refreshing to see the Experiment Station back him up so thoroughly in all that he said of the Sir William.

"EVERITT'S" THOROUGHBRED POTATO.

We see by Everitt's catalog, just received, that he too has got a new early potato. He calls it "Everitt's Thoroughbred." Now, this may be all right, even if it *is* bad taste to name his potato "Thoroughbred" just after Maule's Thoroughbred has been so thoroughly advertised. But besides this he has quoted what Terry said in the *Practical Farmer*, and what I have said in GLEANINGS in regard to Maule's Thoroughbred, and applied it to *his own*, not giving *even a word of credit* or recognition to the *Practical Farmer* or to GLEANINGS. The question is, Is Everitt's Thoroughbred the same thing as Maule's Thoroughbred? Here is a part of what Maule says in regard to the matter:

MR. ROOT:—Your letter is like a thunderbolt out of a clear sky. I have not seen Everitt's catalog, but we have never sold him any of these potatoes, nor could he have bought them from us at any price. I named this potato myself, and the originator did not know until a short time ago what name it was going to be sold under; we have never had any thing so close in our hands as this potato; and to protect ourselves we took every potato we knew to be raised of this variety the past summer, so there is no question but what we have control of the entire stock, and it was impossible for Everitt to get the genuine article in any way, shape, or form. Such practices as this hurt every legitimate house in the trade.

Philadelphia, Jan. 13. WM. H. MAULE.

BEESWAX WANTED.

Wax is coming to us in increased quantities from every direction, but we need it all and more too. We offer, till further notice, 28c cash, 30c in trade, for average wax delivered here; or if you prefer we will exchange you our new-process foundation for your wax, pound for pound, by your paying us a difference of 12c per lb. on heavy or medium brood, 15c per lb. on light brood, 20c per lb. on thin surplus, or 25c per lb. on extra thin surplus, you paying freight both ways. In large lots of 100 lbs. or more we will exchange for a less difference, which we will quote on application. Our new process foundation pleases wherever seen. Those who have not seen it can have samples free for the asking.

SECOND-HAND MACHINERY.

One 20-H. P. Fishkill left-hand box-bed engine, fitted up as good as new. Particulars and price on application.

One 50-inch Buffalo right-hand undershot horizontal-discharge exhaust-fan in good order. Will sell for $35.00.

Four ripping-tables with screw-and-chain gauge-table, 26x44 inches, with heavy power mandrel and 10-inch rip-saw. Can be rigged to cut off. Price as they stand, $15.00 each; worth $25.00.

One large saw-table to rip, and cut off table-top, about 4 feet square; will sell for $15.00 as it stands. A bargain at the price.

Two 4-piece-section machines, as good as new. Sold originally for $85.00. Offered now at $20.00 each, as they stand. A rare bargain to one who has use for them.

LIST OF CLOSE-OUTS.

In rearranging our list of miscellaneous goods we find a good many odds and ends which we do not care to catalog, as we will not keep them after present stock is sold. In order to close these goods out quickly we have made up a list of them and cut the price from 20 to 100 per cent from former prices. This places many of the goods below cost. We have combined this list with our premium list in a 16-page pamphlet, of which we have printed 25,000. These are being mailed with our catalog, south and west, as far as they will reach. The premium list having already been given to our readers, we give you in this issue the list of close-outs. Remember, these goods can not be duplicated at these prices, and are therefore offered subject to previous sale. In ordering from this list it will be prudent to name a second or third choice of goods to send for your money in case the goods first chosen are sold before your order reaches us.

MONEY IN TOMATOES

But You Must Plant the Right Seed.

My new Seed Book tells all about the best kinds of Tomatoes and much else of interest in the Seed Line. Most attractive and instructive buyers catalogue ever published, illustrating these Tomatoes, free to all intending purchasers. Address at once. P.O. Box 614.

H. W. BUCKBEE,

Rockford Seed Farms, ROCKFORD, ILL.

With a discount of 5 per cent on Dov. hives and sections until Feb. 15. All other supplies for the apiary, 3 per cent. Remember, we handle The A. I. Root Co.'s goods. Can save you time and money by ordering nearer home. Send for 36-page catalog, free.

John Nebel & Son,

High Hill, - - - - Mo.

For Sale.—My place on Gulf of Mexico, 6 miles from town, containing 15 acres, 7 of which under fence, with 40 colonies bees, extractor, pony, wagon, cart, skiff, nursery, etc., for *only* $800! Reason, other business. CHAS. NORMAN, St. Petersburg, Fla.

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Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡. foreign, § The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8 | Bible, *good print*, neatly bound..... 20
10 | Bunyan's Pilgrim's Progress**..... 50
20 | Illustrated Pilgrim's Progress**..... 75

This is a large book of 426 pages and 175 illustrations, and would usually be called a $3.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5 | Harmony of the Gospels..... 35
3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*..... 10
1 | Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper..... 05
2 | Same, board covers..... 20
5 | Same, words and music, small type, board covers..... 45
10 | Same, words and music, board covers..... 75
3 | New Testament in pretty flexible covers... 05
5 | New Testament, new version, paper covers. 10
5 | Robinson Crusoe, paper cover..... 10
4 | Stepping Heavenward**..... 18
15 | Story of the Bible**..... 1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

5 | The Christian's Secret of a Happy Life**.... 25
8 | Same in cloth binding..... 50
| "The Life of Trust," by Geo. Muller**..... 1 25
5 | Tobacco Manual**..... 45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

Postage.		Price without postage.
15	A B C of Bee Culture. Cloth.....	1 10
	Advanced Bee Culture, by W. Z. Hutchinson	50
8	Amateur Bee-keeper, by J. W. Rouse.....	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§.....	2 36
21	Same, Vol. II.§	2 79
	or, $5.25 for the two, postpaid.	
10	Bees and Honey, by T. G. Newman.....	90
10	Cook's New Manual. Cloth.....	1 15
5	Doolittle on Queen-Rearing.....	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment.....	22
1	Honey as Food and Medicine.....	05
15	Langstroth Revised by Ch. Dadant & Son..	1 10
10	Quinby's New Bee-Keeping.....	1 40
	Thirty Years Among the Bees, by H. Alley	50
	Handling Bees, by Langstroth. Revised by Dadant.....	08
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey Bee, by Thos. William Cowan..	95
	British Bee-Keeper's Guide Book, by Thos. William Cowan, England§.....	40
3	Merrybanks and His Neighbor, by A. I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46

MISCELLANEOUS HAND-BOOKS.

5 | An Egg-Farm, Stoddard**..... 45
| Amateur Photographer's Hand-book**.... 70
5 | A B C of Carp Culture, by Geo. Finley..... 35
5 | A B C of Strawberry Culture** By T. B. Terry 35

Probably the leading book of the world on strawberries.

| Barn Plans and Out-Buildings*..... 1 50
| Canary Birds. Paper..... 50
2 | Celery for Profit, by T. Greiner**..... 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

8 | Domestic Economy, by I. H. Mayer, M. D.** 60

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life-study. The regular price of the book is $1.00; but by taking a large lot of them we are enabled to make the price only 60 cts.

| Draining for Profit and Health, Warring.. 1 50
10 | Fuller's Grape Culturist**..... 1 40

This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact friend Fuller here tells us how, by easy steps, to make any grapevine come into the work, and make a pleasant, orderly appearance: and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of season. We have tested the system, and know whereof we speak.

| Farming For Boys*..... 75

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-Growing**..... 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

12 | Gardening for Pleasure, Henderson*..... 1 85

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12 | Gardening for Profit..... 1 85

The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

| Gardening for Young and Old, Harris**.... 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Garden and Farm Topics, Henderson**.... 75
| Gray's School and Field Book of Botany... 1 80
5 | Gregory on Cabbages; paper*..... 25
5 | Gregory on Squashes; paper*..... 25
5 | Gregory on Onions; paper*..... 25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

10 | Greenhouse Construction**..... 1 40

This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay.**..... 1 35

By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

| Handbook for Lumbermen..... 05
10 | Household Conveniences..... 1 40
2 | How to Propagate and Grow Fruit, Green* 15
2 | Injurious Insects, Cook..... 10
10 | Irrigation for the Farm, Garden, and Orchard, Stewart*..... 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

5 | Manures; How to Make and How to Use them; in paper covers..... 45
6 | The same in cloth covers..... 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Sempers.

7 | Market-gardening and Farm Notes, by Burnett Landreth..... 90

The Landreths are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

THE A. I. ROOT CO., MEDINA, O.

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Odds and Ends in Bee-keepers' Supplies.

We give here a list of numerous articles in the way of frames, sections, supers, etc., some being old styles no longer advertised, and others are odd sizes. Very likely you may find in this list something which you can use to good advantage, especially at the low price placed upon them to close them out and get them out of our way. Please remember these items can not be duplicated; and the first to order any particular item will be the one who will get it. On account of the liability of some items you may order being sold, it would be well for you to name a second and third choice to be sent, in case the first is gone. This may save the necessity of delaying shipment, to write you for further particulars.

Odd Lots of Sections.

These are accumulations of odd lots, mostly of odd sizes, anywhere from one to five years old, and good value to any one who can use the sizes:

75,000 4⅛x4⅛x1⅞, open top and bottom, polished, $2.00 per 1000; 3000, $5.00; 5000, $8.00; 10,000, $15.00.

12,000 4⅛x4⅛x1⅞, open 4 sides, polished, same price.

7000 4⅛x4⅛x1 1/16, open 4 sides, white, same price.

20,000 4⅛x4⅛x1⅞, open 4 sides, cream, same price.

1500 4⅛x4⅛x1 1/16, open 2 and 4 sides, $2.00 for lot.

1000 4⅛x4⅛x1⅞, open 4 sides, cream, $1.25 for lot.

1000 4⅛x4⅛x2, open 3 sides, cream, $1.25 for lot.

5000 4⅛x4⅛x7 to ft., open 2 sides, old stock, white, $1.75 per 1000.

800 4⅛x4⅛x1⅜, open 2 sides, cream, $1.00 for lot.

1000 4⅛x4⅛x1 7/16, open 2 sides, cream, $1.25 for lot.

370 4⅛x4⅛x1 1/16, cut for glass, cream, 50c for lot.

875 4⅛x4⅛x1⅞, 4-piece, Dovtailed, $2.00 for lot.

2000 4⅛x4⅛x7 to ft., 4-piece, Dov'd, $2.50 per 1000.

500 4⅛x4⅛x1 1/16, 4-piece, Dov'd, $1.25 for lot.

800 4⅛x4⅛x1 1/16, open 2 sides, cream, 75c for lot.

50 4⅛x4½x1⅜, open 2 sides, white, 20c for lot.

50 4⅛x4⅛x1 7/16, open 4 sides, white, 20c for lot.

50 4½x4½x1¼, open 2 sides, white, 20c for lot.

375 4½x4½x1⅞, open 2 sides, white, 75c for lot.

90 4½x4½x7 to ft., open 4 sides, white, 30c for lot.

500 4½x4½x1⅞, open 2 sides, white, $1.25 for lot.

125 4½x4½x1⅞, closed-top, cream, 25c for lot.

1000 4½x4½x1⅞, cut for glass, cream $1.50 for lot.

3625 5 5/16x4 1/16x1 1/16, no openings, 1000, $1.50; lot, $4.00.

3000 5⅛x6⅛x1 1/16, open 2 sides, $2.50 per 1000.

4625 5⅛x6⅛x1⅞, open 2 sides, $2.50 per 1000.

450 5⅛x6⅛x1⅞, closed-top, $1.00 for lot.

9250 6⅛x5⅛x2, open 2 sides, $2.50 per 1000.

300 6⅛x5⅛x1⅞, closed-top, 75c for lot.

100 6⅛x5⅛x1 1/16, open 2 sides, 25c for lot.

2500 5 1/16x4 1/16x1 1/16, open 2 sides, cream, $1.50 per 1000, $3.00 for lot.

1000 6⅜x5x1⅞, open 2 sides, cream, $2.00 for lot.

800 5x6x1⅞, open 2 sides, white, $1.25 for lot.

120 6x5x2, closed-top, white, 35c for lot.

375 5⅛x5⅛x1 1/16, closed-top, white, $1.00 for lot.

150 5⅛x5⅛x1⅞, open 2 sides, white, 40c per lot.

75 5x5x1⅞, open 2 sides, white, 25c for lot.

80 4⅛x5⅜x1⅞, open 2 sides, white, 25c for lot.

90 5⅜x4⅛x1⅞, open 2 sides, cream, 20c for lot.

1870 5⅜x4⅛x1⅞, open 2 sides, cream, $3.00 for lot.

625 4⅛x5⅜x1 1/16, open 2 sides, cream, 75c for lot.

400 6x4½x2, closed-top, cream, 60c for lot.

165 5⅛x4⅛x1⅞, open 2 sides, cream, 25c for lot.

50 4⅜x4⅜x1⅞, open 2 sides, white, 15c for lot.

90 6x6x1⅞, open two sides, white, 25c for lot.

50 4x4½x1⅞, closed-top, cream, 15c for lot.

100 2⅞x4⅛x1⅞, open 2 sides, cream, 25c for lot.

1000 thick-top crosswise, L. frames, 9⅛x13⅜, top bar 13⅞ long, 1 wide, ⅞ deep, molded bottom-bar ⅜ square. $1.00 per 100; $7.50 per 1000.

500 split-top L. frames. This is a regular L. frame, with ends and bottom ⅛x⅞, and top-bar in 2 pieces to put foundation between when nailing up. There are 250 in a box at $2.00 per box.

22 telescope covers, 13⅞x20 inside measure, 5 in. deep, painted yellow. Price 15c each, $3.00 for the lot.

5 telescope covers 14⅛x20 5/16 inside measure, 5 in. deep, painted white. Will sell at 15c each, 65c for lot.

19 telescope covers, 16½x23 inside measure, 6 in. deep, and covered with tin painted white. Will sell at 25c each, $4.25 for lot.

500 Moore's crates in flat. Made with a wood division between the rows of sections instead of a T tin; 14x18¼ inches, outside, for 28 sections 1⅞ inches wide. To fit inside of 10-frame hives. Price 10c each, 80c per 10, $6.00 per 100.

5 T supers 13⅞x20⅛ for 28 4⅛-inch sections. Ends are 1½ inches thick. Nailed and painted. 10c each with T tins only; 25c each, filled with sections.

12 Dov'd supers 13⅞x20, nailed and painted. Price, empty, 10c each; with section-holders and tin separators and sections complete 35c each.

38 slatted wood honey-boards, 13⅞x20, bee-space one side, nailed, edges painted. Will sell at 6c each, $2.00 for lot.

500 No. 6 slatted wood honey boards in flat, 14⅛x19⅛, to fit inside hive, bee-space both sides. Will sell at 3c each, $10.00 for lot.

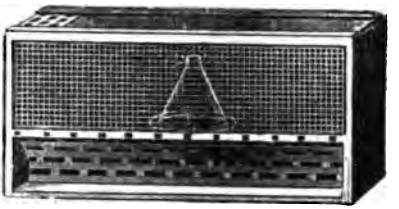
200 section-holders, nailed with tin separator, worth at regular price 3c each. Will sell at $1.25 per 100, $2.50 for lot.

150 4-box cases, flat; 80c for lot.

75 half-depth wide frames nailed; $1.00 for lot.

200 8-frame, No. 2, wood-bound, zinc, honey-boards, 12x19⅛. Will sell at 10c each, $1.80 for lot.

Alley Trap, Old Style.



43 old style Alley traps. These are the same as we have sold up to season of 1895. We offer them at 30c each, $2.50 for ten. Will fill the bill about as well as latest pattern.

750 shallow-frame, all-wood, old-style, 4⅞ deep outside measure. Made to fit Simplicity half-depth bodies. Price, to close out, 75c per 100, the lot for $5.

55 feeders, Simplicity style, 17 inches long. Made to use in top of a 2 inch thick division board. Price 5c each, $2.00 for lot.

Stanley Extractors.

We still have left two 4-frame machines of the pattern shown in cut. The regular price at which this machine sold was $20; we offer these, to close out, at $9 each. With gear attached $14.

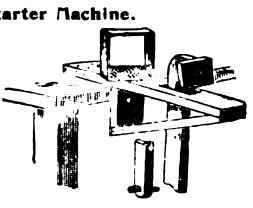
Given Press,

for making Given foundation. We have a complete outfit with dies, boilers, etc., complete, which we offer at $40.00. It is second-hand but in in good condition.

Sliced-wood Separators

we consider the sawed-wood separators much better than the sliced because they are straighter and more durable. The sliced serve a good purpose, however, and are preferred by some because they are cheaper. We no longer list the sliced separators, and we have a number of different sizes on hand which we offer at very low prices to close out. The straight separators we will furnish while they last at 15c per 100; $1.25 per 1000; 5000 lots or over, $1.00 per 1000. We have the following quantities and sizes in stock, all 1/16 to 2/16 thick: 2000 3⅞x12⅞; 18,500 3⅞x17; 7500 3⅞x17⅛; 14,000 3⅞x18⅜; 14,500 3⅞x20; 2000 3⅞x22; 3200 4⅛x20. If you want any of these cut to any other smaller size add 5c per 100 for cutting. We have three sizes slotted both sides which we offer at 25c per 100; $2.00 per 1000. To close out, any one or all lots, $1.50 per 1000: 3500 4½x14, slotted both edges; 4500 4½x17, slotted both edges; 6000 4½x18⅛, slotted both edges.

Clark's Starter Machine.



This implement is used for putting starters into sections by pressure on the edge, similar to the Parkers machine, except that it works by foot power. These formerly sold at 50c each. We will close out the few we have on hand at 25c to those who want them.

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Close-Outs.—Too late to classify.

Three-cent Articles to be Closed at 2 Cents Each, or 20 Cents per Dozen.

BROOM HOLDERS, iron, japanned. Postage, each, 3c.
MUSTARD SPOONS, made of boxwood. Post., each, 1c.
SLATE. 6½x5½, hardwood frame; not mailable.
PIE PLATE. SCALLOPED; 6-inch. Postage, each, 3c.
PAN, OBLONG; size 5½x8½; just the right size to make a 1-lb. sugar-cake; good goods, but shopworn. Postage, each, 3c.

Five-cent Articles to be Closed at 4 Cents Each, or 42 Cents per Dozen.

SCRUB-BRUSH. Good quality but small. Postage 5c.
DRESSING-COMBS, horn with metal back; fair quality. Postage, each, 3c.
RUBBER ERASER. Just the thing for pencil-marks that you want out of existence. Postage, each, 2c.
TOOTH BRUSHES; small, but good values at this price. Postage, each, 3c.
CURLING IRONS, one handle; iron polished, handle enameled. Postage, each, 4c.
POCKET MIRRORS. Zinc case; 2½-in. Post., each, 3c.
TOY SHOVELS. Made of galvanized iron, with a wooden handle. Postage, each, 5c.
LATHER BRUSH. Small size; fair quality. Post. 3c.
FLESH FORK, two-tine; extra heavy wire, retinned. Postage, each, 5c.
TEA CANISTERS, with cover, small size. Postage 5c.

Ten-cent Articles to be Closed at 7 Cents Each, or 75 Cents per Dozen.

SHEARS, 6-inch, iron, nickel-plated. Just the thing for children. Postage, each, 4c.
WALLETS, for gents; fair quality. Post., each, 2c.
TACK PULLER, A. & B. make; same style as the celebrated "Little Giant," but with single jaw. Postage, each, 3c.
RING OILER, NO. 2, best quality; but as we are going to give you a No. 3 for 10 cts. in the new list, we will sell the rest of these at the above price. Postage 4c.
ANCHOR FLOUR PASTE, for pasting labels on tin cans, etc. We have but a few 1-lb. cans left, which we will close at the above prices. Postage, each, 10c.

Fifteen-cent Articles to be Closed at 10 Cents Each, or $1.00 per Dozen.

GOLD-EYED NEEDLES. We still have a small stock of these left. Those who order first get bargains. Postage, each, 3c.

Twenty-cent Articles to be Closed at 15 Cts. Each, or $1.50 per Dozen.

HAMMER, full-size, fair quality. Postage, each, 22c.
MATCH BOX, bronzed iron, with cover. Made to hang to wall. Postage, each, 16c.
PURSES, light colors, nickel-plated frame; good quality but odd shapes. Postage, each, 3c.
INK-STAND, "snail-shell" pattern; formerly listed on our 20-cent counter. Not mailable.
TACK-PULLER. "Columbian" pattern; 7½-inch; very strong, and well made; blued steel jaws; polished iron hammer; enamel handle. Post., each, 8c.
DIPPER, "anti-rust." Called two quarts, but really holds but one; zinc strips on bottom to prevent rusting. These goods are somewhat shopworn, but good values at the price. Postage, each, 12c.

Twenty-five-cent Articles to be Closed at 20 Cents, or $2.00 per Dozen.

HAT-RACK. Hooks, wood frame, about same style as racks used in passenger cars. Postage, each, 24c.
HORSE-BRUSH, standard size; patented leather back, and strong hand-strap. Postage, each, 8c.
COOKY-PANS. You all like cookies; but we doubt whether your wife likes to have you discover the bottoms burnt. With this pan you can avoid this, as they have a coating of the celebrated asbestos on the bottom, which is death on burnt victuals. Postage, each, 20c.

Miscellaneous Goods.

SIGNS. "No Hunting, Fishing, or Trespassing Allowed on This Farm," marked on good painted board, with molding edge to protect from weather. Regular price, 50c; special, to close, 35c. Unmailable.
PASTE BRUSHES, single, flat; prices to close.
1½ IN. Each 8c; dozen 85c; postage, each, 3c.
2 IN. Each 10c; dozen 95c; postage, each, 3c.
2½ IN. Each 12c; dozen $1.00; postage, each, 3c.
OVAL PAINT-BRUSH, "Atlantic No. 3;" good quality, but odd size. Regular price, 20c; special, to close, 15c; dozen $1.60; postage, each, 4c.
DINNER-PAIL. Alligator pattern; japanned. Nice for drink, pie, etc. Regular price, 75c; special, to close, 40c each; postage 30c.
ROCHESTER TEA-KETTLES. Made from solid copper; handsomely nickel-plated on outside; inside lined with pure tin. These goods will last as long as the celebrated "granite," and are much lighter. The following list consists of a few made with the improved hinge swinging cover:
NO. 7. Regular price, $1.15; special, to close, 95c.
NO. 8. Regular price, $1.40; special, to close, $1.20.
LAUNDRY SOAPS. Odds and ends; prices to close; ¼ lb. cakes. Six cakes for 25c., or $3.50 per box of 100 cakes. Banner soap, Our Laundress soap, or the Central Mottled German soap.

KIND WORDS FROM OUR CUSTOMERS.

Shipment 42,514 came to hand all right. Sections are nicer than ever; so is the foundation.
Findlay, O., Dec. 16. D. C. ROUTZON.

The 1 lb. of Craigs and Rural New-Yorkers arrived here all right, and they are nice. They were five days on the road. I was afraid they would freeze.
Phlox, Ind., Nov. 8. ELMER SHRADER.

JAPANESE BUCKWHEAT—2 BUSHELS FROM 4 OZ. OF SEED.

Mr. A. I. Root:—About five years ago I received a sample (¼ lb.) of Japanese buckwheat from you, with directions for growing. I was so well pleased with the results that we should like to get a *barrel* of the same sort, to sow this spring. (It was put in the last day of April, and yielded about two bushels.)
Fairfax, Va., Dec. 22. MRS. K. J. E. SLAYTON.

A KIND WORD INDEED.

Mr. A. I. Root:—I wish to say a word in your ear. You are doing some of us good in more ways than some of us will ever own to you. Keep right on. Your expose of that great swindle (Electropoise) has greatly pleased me, and I know it has a great many other of your readers. I enjoyed reading of your great temptation. It has been a sore trial to me, and I have often wondered if other men were so badly tempted. I am glad you have been able to resist so great temptation through the grace of our Lord; and I can thank him for giving me the strength he has, to resist.

I have greatly enjoyed reading Ourselves and Neighbors in the Dec. 1st issue. How true your words are! and how often even some of our Christian neighbors show to others such a grasping for the last cent, in their dealings, even with those who are very poor, and tip the scales at the quarter oz.! Would that they could take your text to heart, and have a little more feeling for others. How much it help some faint or doubting brother or sister! As we pass through here but once, our record should be such that others will be able to follow.
Rogersville, Mich., Dec. 9. B. G. SCOTHAN.

WHAT IS BEST TO EAT, OR NOT TO EAT?

Friend Root:—Would it not be well to remind your healthy readers that God himself has prescribed to man his diet, from the beginning—first giving him, Gen 1:29, herbs and fruits, and then, Gen. 9:3, meat of "every moving thing that liveth" for meat? also I. Tim. 4:4—"For every creature of God is good, and nothing to be refused, if it be received with thanksgiving;" also I. Cor. 10:25: "Whatsoever is sold in the shambles, that eat, asking no questions for conscience' sake;" 26: "For the earth is the Lord's, and the fullness thereof." I believe strongly in special diet for sick people. I believe that, in almost every case, a correct diet, as to quantity and quality, would be all sufficient to bring back health, providing also due care is taken to observe other necessary conditions. Ought not Christians to strive correspondingly to have a strong and healthy body as they do to have a pure, sanctified soul, God being the creator of both? "Glorify God in your *body* and in your spirits, which are God's." A. MOTTAZ.
Utica, Ill., Dec. 20.

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VOL. XXIV. FEB. 1. 1896. NO. 3.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS

The A. I. ROOT CO.
MEDINA · OHIO ·

MURRAY-HEINS CLEVELAND O

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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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ILLUSTRATED SEMI-MONTHLY
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STRAY STRAWS FROM DR. C. C. MILLER.

SYMPOSIUMS are to come this year, eh? Good!

CARBOLIC ACID is recommended as a remedy for burns in *The Prescription*.

MANY BEES give much honey, and much honey gives many bees.—*Abbe Collin*. [Very true. —ED.]

THAT REVERSIBLE bottom-board, p. 65, is a good thing, only the deep side should be an inch deeper.

POLLEN, says Prof. Brabant, in *Progres Apicole*, is not good for bees in winter, but getting rid of it is as troublesome as leaving it.

THE LATEST CURE for bee-stings I find in *Bulletin de la Somme*. Cut the head of a white poppy and drop the milky juice on the wound.

A RECORD BOOK has this advantage, that it can be referred to at any time, and is often useful in furnishing testimony as to events that transpired years ago.

THAT DISCOVERY given on page 50 is a good thing; but if Mr. Sallemand had read GLEANINGS I think he would have found that way of getting out bees years ago. It's been in use here may be ten years.

THE NEW PORTER ESCAPE, p. 64, will be fine to clear bees out of a pile of supers off the hive. Isn't it just possible it may work better than the old kind when on the hive? [Perhaps. Tests this summer will determine.—ED.]

FOUNDATION with cells an eighth larger than worker-cells, for the sake of raising larger workers, is one of the things meditated in France, according to *Le Progres Apicole*. Been tried in this country, hasn't it, A. I.? [Yes; but it didn't make larger bees.—ED.]

NUMBERING HIVES is favored by about three out of four of those who reply in *A. B. J.*, and about the same proportion think the numbers should be detachable. Say, you Medinamiters, are you going to have any tags ready for us by spring? [Yes, they are ready now—tag-board manilla, 50 cts. per 100.—ED.]

THOSE WHO SAY fires are bad in bee-cellars have been in the habit of quoting Doolittle's experience; but you see on p. 61 he says it was the "poisonous vapor" of an oil-stove that did the mischief. If I'd let the smoke of my stove empty into the cellar the fire would be a bad thing for my bees too.

A WRITER in *B. B. J.* gives a case to prove that a colony made queenless starts a queen from a larva and not from an egg. I didn't suppose there was any question about that nowadays. [Given eggs and larvæ they will invariably start the cells from the latter, if queenless—at least, that is our experience.—ED.]

I'VE LEARNED two things from last GLEANINGS among others—that live steam will burn wax, and that the presence of wax will spoil honey at 150°. [Mr. Taylor ought to try his honey-heating experiment over again; because as it is, nothing is proven except perhaps what we already knew, that wax, when heated with honey, darkens the honey.—ED.]

M. BERTRAND, editor of the *Revue*, accepted with favor the theory that bees inherit character from the nurses. He introduced a Caucasian queen of great gentleness into a very vicious colony, and the progeny of the new queen showed no trace of viciousness. He is now very doubtful as to the correctness of the theory.

A DELIGHTFUL VISIT I had from the editor of GLEANINGS; but his coming made a sensible diminution in the amount of beef on the market. His appearance certainly speaks well for the benefits of a beef diet. [Yes, I weigh the most I ever did in my life. Early in the summer my weight was 117 lbs.; now it is 145, and is still on the increase.—ED.]

THE REPORT of the U. S. Secretary of Agriculture quotes the English honey market as giving "Thurber-Whyland's white-sage, strained, 1-pound jars" at only 1c a pound more than

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"Californian in original cans." One can not help pitying that poor cent in having so much to do in covering the expense of jars and putting up. The report innocently remarks, "It would be ruinous to send adulterated honey to England."

REPLYING TO THAT FOOTNOTE on page 48, I think it's a fine thing to have *occasional* spells of warming up a cellar if it's too cold; but it's a much finer thing to keep it even all the time at that point that keeps bees most quiet. If I could hold my cellar at that point every minute of the time, and have the air always sweet, I'd risk the bees. That's what enrages me so at Doolittle and his cave. I can't keep my cellar so even.

I PROTEST, I earnestly protest, against that sort of tyranny that says I must use spacers. I don't like them at all for comb honey, just because they don't suit extractors. Next thing you'll be making me produce comb honey in brood-frames just because extracted-honey men have no use for sections. [If you don't like "that sort of tyranny"—why, just revolt. Perhaps you and I together can *force* the extracted-honey men into producing extracted honey from sections. If you won't go to the mountain, *perhaps* the mountain will come to you.—ED.]

LAZY BEES have often been talked about, and a difference as to the industry of different colonies has been generally admitted; but it strikes one as revolutionary to hear Wm. S. Barclay suggest, in *A. B. J.*, that there may be such a thing as old bees playing in front of the hive when bees generally are at work in the field. *Do* old bees play? [I have seen bees "play" many times, but I never saw old shiny backs engaged in such frivolous pastime. In all cases under my observation, the bees that play are the bright fuzzy ones—the younger ones.—ED.]

MR. EDITOR, you say the Standard Dictionary uses "apiary" as an adjective, page 48. Nouns are constantly used as adjectives, just as you make the nouns "clover" and "chunk" do duty as adjectives on the same page. But that doesn't warrant you in using an adjective as a noun. Drinking-water might be used for dish-water, but hardly dish-water for drinking-water. [Correct; we did not mean to say the Standard was right to call Dr. Miller the definer of "apiary terms." The book itself does not use apiary as an adjective in defining that term.—ED.]

COMMENTING on figures given by Baldensperger (see p. 951) who counts the life of a worker from 35 to 40 days, and whose colonies reach only 35,000 to 40,000 in number, the editor of French *Revue* thinks it must be that bees do not live so long in Palestine as elsewhere. M. Bertrand reports an experimental swarm hived June 24 without a queen, and yet Nov. 22 it had at least 8000 bees living. [Isn't it true that bees are shorter lived in hot than colder or temperate climates? In the first mentioned they can fly every day of their lives, and hence wear out sooner.—ED.]

THAT LITTLE FICTION, that paper is necessary between the sheets of foundation, lives on year after year, in spite of the trouble it makes to get the paper out of the way. I have piles of foundation 18 inches deep without paper, that have stood three years in a window with only a thin board to keep off the direct rays of the sun, and I can separate the sheets easier than if papered. [I saw those piles of foundation unpapered, and I can vouch for the doctor's statements. We papered because we thought it necessary. We shall be very glad to believe it is not. How is it, readers?—ED.]

THAT WINTERING SYMPOSIUM; MAMMOTH SOLAR WAX-EXTRACTORS IN OLDEN TIMES; THE KITCHEN STOVE.

You need not fear, Mr. Editor, that the wild and frantic admiration, and the storms of applause with which these Skylark papers have been received, will either abate or be disappointed. It is true, I have not been able (in my own small plant) to manufacture a sufficient supply of undeveloped intellect for my own use. Besides, my baler is broken and there is no mechanic in this country place who understands how to repair it. But I have made a contract with the best and strongest company in the United States for a full supply—a carload a week—pending the erection of a large factory which I have designed. These papers shall always be the *ne plus ultra* and *sina qua non* of *mulium in parvo*. If any man can beat that, I should like to see him hitch up his team and drive out. Don't be afraid, Mr. Editor. I am equal to the occasion.

I have read in GLEANINGS the whole eight articles for wintering bees. From all I can gather from the eight writers, and their descriptions of their methods, I can't see that they differ very widely from one I built for my bees in the East, twenty years ago. Putting all their plans together, and making one building out of them, would be a downright and palpable infringement on my patent. But as that ran out about three years ago, I suppose I have no recourse.

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The author of "Canadian Beedom," in the *American Bee Journal*, p. 793, gets mad because North America is not in Canada, according to the new constitution of the North American Bee-keepers' Union. Listen to him:

But what most concerns Canadian beedom is the entire absence of all recognition of Canada, except so far as it is part of North America. In this respect it is only on a parallel with Mexico. The constitution of the old association distinctly said: "This organization shall be known as 'The North American Bee-keepers' Association,' and shall include in its territory all of the United States and Canada." All this has been struck out. There were three Canadians on the committee who do not appear to have objected to their country being dropped in silence. They will have a chance to explain and defend themselves at the annual meeting of the Ontario Bee-keepers' Association, in January.

No: he kicks because Canada is not in North America. Just listen to—

ARTICLE I.—NAME.

This organization shall be known as the "North American Bee-keepers' Union," and shall hold meetings annually at such time and place as may be designated by the Board of Directors, due notice being mailed to all members at least 60 days previously, and published in the bee-periodicals of the United States and Canada.

And I kick because the United States is not in North America, and because of the entire absence of all recognition of the United States, only so far as it is a part of North America. We both kick, on the same ground, individually, collectively, and all together. We stand erect on our hind feet, with our bristles up, and demand justice.

I am glad that the three members of that committee will have to answer for their crime to the Ontario convention. But the four American members will have a tough time answering to me for permitting "their country to be dropped in silence." Friend Beedom, both the United States and Canada are treated *exactly* alike.

I see that Prof. Wiley has given to the world another "scientific pleasantry." He was the author of what the *American Bee Journal*, in the days of Thos. G. Newman, stigmatized, very justly, as the "Wiley lie." After letting it run for years through the papers of Europe and America he explained it by saying it was a "scientific pleasantry." Now he says that "honey is cheap because much of it that is sold is nothing but molasses." "Great men are not always wise." Is comb honey nothing but molasses? It is also as low, in proportion, as extracted.

Dr. G. P. Hachenberg, in the *American Bee Journal*, after having covered his kitchen floor with a carpet of boiling wax, and nearly burned down his house, was driven out by the women, and compelled to resort to invention. Served him right. Any person who resorts to a kitchen stove to render wax deserves all he gets. Three rocks and a kettle, off a distance from the house, is the place to render out wax in that way. He says, "I tried fire, hot air, steam, and the sun process, but with little satisfaction. The extracting was either too slow and wasteful, or proved damaging to the wax." Does he mean by the "sun process" that he tried the solar extractor? No. He must mean some other sun process; for further on he says:

Some philanthropic bee-man may suggest to me to use the wax-extractor. I know nothing about that machine, but I know enough about the adhesiveness and gummification of beeswax, on a philosophic theory, to believe that it can not be thoroughly and economically rendered by machinery. If it had the nature of pure oil or water, I should not have these pessimistic views about it.

It will be clearly seen that he is unacquainted with the solar extractor, and yet he knows enough on "philosophic theory" to know that it won't work, and that "the wax can not be rendered out thoroughly and economically." He doesn't believe in it, because he evidently never saw one, and because it is a "machine." If he had seen some of the great solar extractors that were here 15 or 20 years ago—20 to 25 feet long and 6 to 8 feet wide—he would have opened his eyes. They were built principally for extracting honey—wax was a secondary consideration. This was before the revolving extractor made its way to this coast. They were generally built so the pipe would run into the honey-house. The most popular shape was a half-octagon. A strong rack was fitted in—about a third of the way from the top—that rested on the sides of the extractor. Then this rack was covered with clean sacking, and the honey piled in, frames and all, just as they came from the hive. Of course, the whole inside of the extractor was bright tin, and it was covered with glass. They would extract from 1000 to 1500 pounds of honey per day. But when old comb was to be rendered out they put water in the extractor so as to keep the wax above the faucet, or gate, and greased the sides of the extractor, above the water, as high up as they thought the wax would come. In this way there was no "stickiness," "adhesiveness," nor "gummification."

Now, after the doctor stopped running he resorted to invention. He invented a can in a pot of water. He also "invented" a piece of wire cloth to go down on top of the combs which are in the can, or ought to be there. Also he "did invent" two iron rods attached to the wire screen, coming high up above the can, and joined at top to hang a flatiron on for a weight. The doctor is opposed to machinery, and that is the reason he has kept so closely to the old plan of a big kettle, a sack of combs, and three rocks to hold it down, for his machine is absolutely that and nothing more. But after all his tribulation, his conflagration, and his foot-race to get away from the women, he advises his readers to break the wax out in chunks and run it into cakes *on the kitchen stove!* No, no, doctor, not while we can see in imagination the pots, pans, skillets, and broomsticks flying around your head as you fled down the garden path.

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EUROPEAN AND OTHER MATTERS.

DRIVING BEES OUT OF HOLLOW TREES.

By Charles Norman.

Quite a novel way—novel to me at any rate—of driving bees out of a hollow tree has been given by a French priest, father Métais (*Revue*). He writes: "Visiting a village of my parish one day I met a man who was going to take out of the hole of a tree a swarm which had entered there the previous day. He begged me to do the work for him, for he was badly equipped and feared a little the stings of the bees. I accepted with the same zeal that I always feel for any thing connected with bees. Having provided myself with a mirror I let the man fetch me a lot of large ants with their eggs, and threw two handfuls of them into the hole of the tree upon the bees. Almost at once the poor insects, forced by the ants, rose in confusion and flew off. I ran before them with my mirror, and in consequence of this they settled on the branch of a tree near by. Not having a smoker I placed the hive above the swarm and set to tapping the branch on which the bees were suspended. They were not slow in ascending, and had, after a few minutes, entered the hive." For the information of some of your readers I remark that in Europe, to make a swarm cluster, instead of using the fountain-pump, the rays of the sun are directed on the bees by means of a mirror.

A German bee-keeper uses another method of getting the bees out. He reports to the *Bienenvater:* "A swarm had settled in a hollow tree. The hole extended both upward and downward from the entrance. The bees were in the upper part of the hollow. I took a swarm-hiving box and put in it an empty comb on which I had placed a queen-cage with a reserve-queen. The box I fastened above the opening of the hollow tree. Then I poured a little carbolic acid in. I was astonished at the effect. After a few moments the bees came out like a natural swarm. After about ten minutes all were out, marched into the box, and half an hour later they were already gathering nectar."

CARBOLIC ACID FOR STOPPING ROBBING.

Concerning carbolic acid, Mr. A. Lenk reports to the *Leipziger Bienenzeitung* how he stopped robbing. He leaned a little piece of board over the entrance of the hive, and poured a few drops of carbolic acid on it. All robbing was over at once. To be sure, though, he wet another small piece of board with carbolic acid, and then laid it on the entrance-board. He says he always succeeded with the remedy, yet the board must not be planed, as a planed one does not take the acid readily.

THOSE FOOTNOTES, AND HOW THEY ARE REGARDED BY EUROPEAN WRITERS.

A month or two ago I again noticed that, referring to GLEANINGS, somebody pointed at "that everlasting footnote, as some have called it." Now, is it really worth while to find fault with such a trival thing? Mr. Hutchinson, for instance, in his splendid monthly, the *Review*, says whatever he has to say in his Editorial Department while you speak out editorially in footnotes. But either of you—as well as other editors—*speak out!* Well, then, is not the whole difference merely an external one? In my opinion, the question is not *where* the speaking is done, but whether it is done *right*. If what you say is wrong, then let them go for you—sharp, if needs be—but if it is right, then they must let you alone. Perhaps it is a little satisfaction to you to understand that Mr. Baldensperger (I need not introduce him to the readers of GLEANINGS), in the *Revue*, after saying that your footnotes give a "veritable valeur" (genuine value) to your journal, continues: "These remarks below the articles have 'une note gaie' (a lively tone), and the writer knows what to 'hold to,' as we say in French, but, to speak in more colloquial English, he knows how to maintain his position, and to rectify possible errors in the writings of others. I state with pleasure that you (Mr. Bertrand) also give your approbation, and this is indispensable, it seems to me." Mr. Bertrand, *in a footnote*, says: "I imitate Bro. Root because I have been requested to do so." When a writer of Mr. Bertrand's good taste (those Frenchmen, you know) follows your precedence you can not be much out of the way, Mr. Editor.

HOT WATER—WILL IT NOT PRODUCE WEAKNESS?

Still another remark. You always speak of *hot* water. Now, I dare not pretend that the same is not useful in certain instances; it stimulates, no doubt, and may do some good when taken once or, perhaps, even now and then. But to think that a person, day after day, pours down into his or her stomach a pint of hot water four times a day—is this not atrocious? *Must* it not finally produce a weakening, debilitating effect, like some medicine that seemingly cures, but leads to diseases which show later on? Therefore I ask, would not, as a rule, *warm* water be very much more preferable? In fact, are you sure that Dr. Salisbury *himself* recommends hot water in the way you are using it? On page 787 *he* says in regard to the hot water, "Take water at a temperature most comfortable to the individual, *but not cold.*"

This does not sound very hot; it just sounds warm, not more nor less than *warm!* As you have brought the subject before your readers, and, I trust, do not want to injure or kill them

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(your subscribers), you should certainly explain, or, rather, let Dr. Salisbury himself explain.

St. Petersburg, Fla.

I do not have very much faith in looking-glasses in diverting or controlling swarms while in the air; but I am very certain from experience that sprays of water thrown up among the flying bees do have a most decided effect in driving them like sheep, and of causing them to alight when they would not otherwise do so. I have seen a looking-glass used occasionally, but could never discover that it had any influence.

A good many times we have been asked if there is a way to get bees out of hollow trees without cutting the trees—the owners of the trees in question objecting to having them cut down. The plan proposed by the German bee-keeper, as reported in the *Bienenvater*, I think would work. Bees have a great dislike for carbolic acid. If they were once driven out of the tree they very likely would cluster with a queen caged on the limb.

I have tried carbolic acid in the manner spoken of in the *Leipziger Bienenzeitung*, for allaying robbing. Sometimes I have thought it proved to be of assistance, and at others I have thought it only disconcerted the inmates of the hive and made matters worse.

I am very glad to see the expressions of opinion in regard to the footnotes from eminent bee-keepers across the ocean. Whenever we have asked for an opinion from our own readers their invariable request has been to have them kept going by all means.

In regard to hot water, perhaps a little explanation should be given. I take water just about as hot as the average person takes coffee or tea. Sometimes it is as hot as I can drink it, but more often it is only a little hotter than lukewarm. But hot or cold it will never produce any weakening or debilitating effect. I know of a good many who have used it, and always with beneficial results. The copious drinking of hot water four times a day, an hour and a half before dinner and supper, an hour before breakfast, and before going to bed, will very often effect a cure, even when the person continues on his ordinary rations. Warm water—well, perhaps some can drink it; but the language of the Scripture hits the matter about right where it says, "Because thou art neither hot nor cold, I will spew thee out of my mouth."
—ED.

TAYLOR'S FOUNDATION TABLE FROM ANOTHER STANDPOINT.

THE FIGURES REVIEWED

By C. P. Dadant.

Friend Ernest:—At your request I will consider and criticise friend Taylor's experiment as given in November *Review*.

To my notion, the only thing which that experiment clearly shows is what we all knew as soon as we had ever tried foundation, that, in a general way, the heavier the foundation is, the more readily the bees will work upon it, and the thicker the combs will be that are made upon it. From the tone of Mr. Taylor's writings it is evident that he is, or has been, trying his best to show his pet hobby, Given foundation, as superior to other makes; but the unevenness of his results on those experiments show rather its inferiority.

There are many ways of turning this table, and this matter is very much like the reports of the life-insurance companies, which, though always truthfully given, can always be made to show the one company making the report ahead of all others in half a dozen points. This is a thing that has many times puzzled me. I once had an interview with an agent of the Order of United Workmen, and he soon convinced me that his company, or association, was the best, so I took a policy in this. A few years later an agent of the Mutual Life showed me that their company was ahead of any thing else in the world, and I took an insurance in that. But a little later an agent of the Northwestern showed me, in black and white, that his company was outdoing the Mutual Life in almost every direction, and I had to insure in that too. Well, was that all? No. The Banker's Life, of Des Moines, came forward with a still better statement; but I gave it up. I could not stand it, and had to draw the line somewhere. Now, these companies all publish annual reports, and, to my great wonder, they all show the best results. The fact is, so many points have to be considered that one is sure to excel in one or more of them. Let me see if I can't turn that Taylor experiment to suit *my* company:

Name.	Wt. of honey in 12 sections (¼ case).	No. sheets of fdn. in 1 lb.	No. lbs. honey harvested on each lb. fdn.
Dadant.	11 lbs. 11 oz.	128	124.65
Given.	12 " 8 "	108	112.48
Root.	11 " 9 "	112	107.91
Given.	10 " 11 "	112	99.74
Root-Given.	12 " 6 "	96	98.99
Given.	11 " 15 "	104	103 44
Hunt.	10 " 8 "	120	105.00
Given.	9 " 2 "	112	85.16
Old Given.	12 " "	100	100.00
Given.	9 " 12 "	96	78.00

There! isn't my crow the whitest? and did you not suspect it all along? Mind, these are Mr. Taylor's figures.

Friend Taylor speaks of the quality of the wax. Yes, that has something to do with the success, and I will suggest to him that bees are very much like human beings. A man delights in his own productions. So do the bees. Give them beeswax that smells of the hive, and they will delight in working it over. They will dig into it with pleasure, and work it earnestly and thoroughly; but the less the beeswax smells like beeswax, the less they will like it, and the slower they will be in working upon it. That is why wax that has been exposed to the air a long time is so little liked by them. will venture the assertion, however, that wax, apparently of different texture, if made on the same machine at the same date, and of the same weight, will be worked alike; and if there is a difference it will be in favor only of that which was melted the freshest from the combs. For

this reason I prefer sun-extracted beeswax to all other kinds.

Hamilton, Ill., Jan. 3.

[Yes, I did ask C. P. to review the figures from his standpoint, because, with no disrespect to Mr. Taylor, such an array of figures should be looked at from several different sides to get all the lessons to be learned.

It is said that figures will not lie if you place them right; and I believe it is equally true that a skillful arranging of figures can often be made to prove almost any thing, and yet that arrangement not give an untruthful statement. I had a similar experience with life-insurance. The first policy that I took out was in the Equitable; and the agent made so much of the point of its having the largest *surplus* that I verily believed it had the largest of every thing. Later I took a policy in the New York Mutual Life; and the special point of emphasis made by their agent was that they were the biggest company because they had the largest *assets*. Later on I was solicited to take out a policy in the Northwestern; and I was informed that an elephant was not nearly as effective as a horse in the ordinary occupations of life; that a smaller company could give a better showing than a large one; that the Northwestern could and did show the largest *earning capacity* for their policy-holders, of any of the big four. The statements made by the three agents were literally true; but by laying special emphasis upon some one feature, each agent would convey the impression that his company outranked and outrivaled the others in every thing.

You have made a good showing for your "company;" but when we come to simmer it right down, it really proves that, the thinner and lighter the foundation, the more pounds of honey can be stored upon it for a given amount of wax. This truth is almost self-evident; but it is strikingly illustrated as you have arranged the table.—ED.]

DRAWN COMBS IN SECTIONS.

THEIR ADVANTAGES; THE TAYLOR COMB-LEVELER, AND HOW TO USE IT; HOW TO CONVERT UNFINISHED SECTIONS INTO GOOD MONEY.

By B. Taylor.

Dr. A. T. Peete, of Branchville, S. C., in a private letter, says:

There is one point I wish you would explain for me, either personally or in the journals. I see the advantage of sections already drawn out, especially in poor seasons. We can easily get such here in our long summers, the main honey-flow being over by June 10. But your sections go on the hive twice or three times; are extracted once, cleaned by the bees once, and then have the combs partly melted in the leveler. *What can the wood of the section look like, after all that?* Have you no propolis, or do you have wide frames which keep every thing clean? or have you a way of cleaning the sections? I am afraid mine would look as clean as very old nest-eggs. Some light on this subject would greatly oblige me.

The doctor's way of asking questions makes it look as if the drawn combs involved a formidable amount of work. In this he is mistaken; for the sections are not returned to the hive "three or four times," as he seems to suppose. I will try to make the matter plain by again stating just how I work to get the main part of these drawn (or partly drawn) combs.

Before we began the use of drawn combs we were compelled to restrict the room in the surplus-apartment of strong colonies, so there would not be a large lot of unfinished sections at the end of the surplus-honey season, for we then regarded unfinished sections (as they truly were) as a great misfortune to the comb-honey producer. Curtailing the section room near the end of the basswood season often resulted in renewed swarming, which is at that time a great loss; but if we continued to give unrestricted room at that time there were sure to be thousands of partly filled sections of white honey. I tried many ways to utilize such sections the next season, but without profitable results. With all our care, the honey in the uncapped cells would be more or less candied, and, when returned and finished the next season, never would be in even second-class condition, and were prone to sour and become damp and dauby.

In our locality there was nearly always a good fall flow of dark honey; and if the partly filled sections of white honey would be completed from fall flowers, in my market they would be rated below well-finished sections of entirely dark honey. These difficulties led to the experiments that perfected the "Handy" comb-leveler, which with us turned misfortune into fortune.

Basswood is here the last of the white honey for each season, as a rule. Now, we pile on unlimited supers of sections until the end of the basswood flow, and not one colony in fifty has the swarming passion renewed, but they go on storing surplus to the end. At the end of basswood the colonies thus supplied with room will have far more honey in the supers than they would if they had been *restricted* for room; and there will be more *finished* honey than in colonies with limited surplus-room; and the large quantity of unfinished sections is, if rightly used, the best capital ever owned by a comb-honey producer, for I can extract the unfinished sections, and sell the honey to my customers for 12½ cents per pound more easily than I can sell gilt-edged combs for 15 cents; and I can use the empty combs to *double* my crop of *white* honey next season. Mr. Van Deusen tried to convince me that bees would finish foundation in less time than finished combs; but after four years of practical results I know he is incorrect; for in supers with one half finished combs, and these in the outside of the supers, and the center filled with sections in which full sheets of Van Deusen and other makes of first-class foundation were used every season, the *drawn combs* were all *filled and sealed*, while the foundation in the center

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(where the bees usually finish first) was left *untouched*.

Now I will try to answer pointedly Mr. Peete's questions. You see, doctor, the sections which I use for extracting and using again were got from the supers I must necessarily use in saving the honey crop, and not only without extra work or loss, but with an actual saving in both, for we avoided the swarming trouble, and did not curtail, but *increased*, the general surplus crop, and even the crop of *finished comb honey*, so there was no waste of work here. After the honey is extracted from the sections they are returned to the T supers, and on a warm afternoon are all set out at once in the open air; and by dark every section will be cleaned of every particle of honey by the bees, ready for the comb-leveler. Two hours' work will accomplish all the work of having thousands of combs cleaned; but the leveler must be used on every comb. Surely that will be a big task. No: it is but little more work than to *properly* fill sections with full sheets of foundation, especially where two pieces of foundation are used in each section; and the comb-honey producer who does not use two pieces has not yet learned his trade; so there is but little if any extra work or loss in leveling or using the drawn combs again.

But "what does the wood in the sections look like after all this?" When we first began using the drawn combs we scraped them before returning them to the super; but now we never scrape such sections until they are filled with honey again, and are ready to go into shipping-cases. We scrape the top and bottoms of all our finished supers of comb honey. Before the sections are removed therefrom they are all wedged up tight in the supers; and, the work being *accurately* done, the tops and bottoms are nearly as smooth and level as a board. We set them on end on a table; sit down in front of them, and with a scraper made of a piece of old saw cut to a proper shape, and sharpened so it will cut like a smoothing-plane, we quickly make the sections so new-looking and clean that we have never heard a word of complaint from the most fastidious customer; so there is no bugbear of soiled sections with us. By the way, I clean all the supers of sections, however made, in the way stated.

As to the doctor's inquiry as to whether we have propolis here, I would say that, so far as we know, it is as plentiful here as elsewhere; but we have far less of it than most others. I remember that, at the hotel in Madison, Wis., we explained our way of preventing propolis and burr-combs to two distinguished bee-men (A. I. Root and C. C. Miller), and they said they wished it was true elsewhere than at Forestville, Minn. Our way is to have all bee-spaces kept very close to and not above ¼ inch, to prevent burr-combs and to have every thing about the hives where the bees have to travel made very smooth. For this purpose we now paint the inside of our hives, and have them, as well as the frames, supers, sections, and every part the bees must walk over, very smooth. And now, friends, this does lessen the evil of burr-combs and propolis, not only at Forestville, but everywhere that bees work. A rough fuzzy board is about the same to a bee as a piece of rough boggy brush land would be to a laboring man to travel through; and the first thing the sensible bees do is to make the ways they must constantly travel as smooth as possible. This they do by gnawing, and varnishing with propolis; and I am now certain that all frames should be very smooth, and may be dipped into proper paint with profit; and if only one side of the hives is painted, the inside should be preferred, as it keeps the wood from being soaked with water in winter, and injuring the colony's health and causing the wood to warp and check. Warped covers have never troubled me; but they are carefully made, and both sides well painted.

I have never used wide frames in connection with drawn combs; but I have invented a new super composed of peculiar wide frames in connection with my slotted and cleated separators, without any section case, that is not only cheap and handy, but keeps all sides of the sections entirely clean; and the readers of GLEANINGS shall know all about it soon.

In closing I will admonish those keeping sections over for future use to pile up the supers and cover from the light.

I hope I have made the method of profitably using drawn combs plain.

Forestville, Minn.

[This is indeed an important question, and I believe our friend Taylor has hit upon the proper solution of that problem of unfinished sections. At the convention in Chicago one or two reported very favorably regarding the Taylor method of leveling down the combs; and I was satisfied that the comb-leveler was a good thing, and a very important adjunct to the apiary. I should like to hear from our readers who have tested the Taylor comb-leveler; and even if it does give our old friend a little free advertising, it is all right. A good thing should occasionally be pushed along, and perhaps this is one of them.—ED.]

LONGEVITY OF BEES.

WHY DO THEY LIVE LONGER SOME SEASONS THAN OTHERS? DEAD BROOD; BEES DYING BY THE THOUSAND; IS IT A NEW DISEASE? AND IF SO, WHAT IS THE CAUSE?

By C. Davenport.

The season of 1895 has in this locality been a peculiar one in many respects. The loss of bees around here during the winter and spring of 1894-'95 was fully a half. I lost more than half of mine, so last summer I ran only one yard, and this is all I intend to run in the future,

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for I have bought a piece of land and intend to follow farming in connection with bee-keeping. But as I shall have a very favorable location for bees I expect to keep profitably about 150 colonies in this yard.

Now, perhaps it may interest some for me to give my opinion as to the cause of the large loss of bees here last winter and spring, and to describe some of the things in regard to bees that took place the past summer.

Although it was very dry here in 1894 we had a fair fall flow which lasted very late, and colonies went into winter quarters very strong in bees, especially young bees. But I believe there are other things of more importance for the successful wintering of bees than to have plenty of young ones in the fall. One summer I had a strong second swarm issue from a large box hive. I do not remember the date, but it was just before basswood blossomed. The queen of this swarm was lost on her mating-trip, or in some other way, for I am certain that they did not have a laying queen at any time during the summer. I thought I would let them do without one, to see what they would do. They were hived on combs that contained considerable honey, so they did not have much room to store below; but they filled up what room there was, and then, instead of working much in the sections, they took the world easy.

In the fall I thought I would unite what few of them were left, with some other colony; but on coming to examine them I was surprised at the amount of bees there was left. There seemed to be nearly as many as when I hived them; so in order to experiment further they were put in the cellar, where the rest were. They came out in good shape in the spring. A queen was given to them: and although they dwindled away very fast, they pulled through all right.

Now, in this case the workers lived at least 10 or 11 months, not only a few, but thousands of them. But they would not do so every year. If the same thing had been tried the past summer I do not think there would have been a live bee left after they had been in the cellar a month.

I believe bees live longer some years than they do others. In the fall of 1894 there was a ood deal of honey-dew gathered in this locality. This, or something else, caused the bees to have diarrhea after they had been confined for some time. I think it was the honey-dew that caused it, for colonies that had sugar stores did not have it. Still, I have wintered bees on honey-dew in first-class shape; in fact, last winter some colonies wintered in good condition on it. Again, some that died with honey-dew stores did not get the diarrhea. They seemed to fall right down from the combs, and die without a struggle. What caused this difference in some cases, where the stores were the same, gathered from the same yard, and the colonies side by side in the same cellar, is more than I know. But these cases were exceptions; for most colonies that were on stores that they gathered got the diarrhea, and were in poor condition when put out in the spring. Mine were put out the latter part of March, and for a week or two every thing was very favorable. But suddenly the field-bees commenced to die by the thousand. Strong colonies were, in a few few days, reduced to a small nucleus; many colonies perished outright, and this when the weather was warm and mild. The bees were at the time working on a species of willow from which they were getting large quantities of honey or honey-dew. I felt sure that this was poisonous, and that it was the cause of so many colonies dying around here last spring. On examining these willow blossoms with a strong glass they were found to be alive with a small species of louse. Some around here thought that the reason the field-bees died off so suddenly was because they had poor winter stores, and that they were, therefore, in a feeble condition when put out in the spring, and able to stand but a few days of hard work. do not think this was the reason, because I had some colonies that had pure basswood honey, and some that had sugar for winter stores, and these colonies suffered as badly as the rest.

About the time these willow blossoms were gone there commenced to be a good deal of dead brood. It seemed to die in all stages, and this dead brood continued all summer. It was not foul brood, although it resembled it somewhat. Every colony I had was affected with it, some more so than others. I do not know what it was, or what caused it. I thought at first it was caused by poisonous honey; but that could not have been the case, for this dead brood continued as long as there was any brood reared.

Last fall I put some colonies into clean hives on frames filled with foundation. Others were put into new hives on new empty frames. Others I treated the same as one would for foul brood, giving frames with starters first, then changing again. But in all cases, as soon as new brood was started it commenced to die as badly as before. Some queens that I got from a distance were introduced to some of the worst-affected colonies. In some cases this changing of queens seemed to help; in others, it did not.

Just before white-clover bloom the workers took another spell of dying. They would come out of the hives mornings soon after sunrise, crawl around awhile, then die. Their intestines seemed to be full of thin transparent liquid of a very sharp and acid character. While this lasted only a few days, some colo-

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nies were considerably weakened. Late last fall some colonies were affected with the same thing again. From some hives there would come out hundreds, and die during the day. Some of them were so reduced that, in some cases, I united four or five together before putting them into the cellar. My opinion is, that these peculiar conditions were caused by the character or kind of stores gathered. But I can not understand why some colonies should be affected worse than others.

Southern, Minn., Jan. 2.

[At the Illinois State Convention in Chicago, two or three reported this same dead brood, and bees dying, as you speak of. From the description given, as in your case, it was plainly not foul brood; but what it was, no one seemed to know. There have been repeated letters on the same thing, and we had it one season in our own yard and part of another. We did nothing for it, and it finally disappeared of itself. We shall have to conclude that this dead brood is probably a disease, with characteristics very similar to those of foul brood, but differing in that it has no effect on bees. And now the questions that I should like to see solved are these: (1.) Is it a case of poisoning, or (2) is it a real disease caused by bacillus, similar to that of foul brood? 3. If so, can it be cured. In answer to the first question, Mr. Davenport seems to feel that it is not a case of poisoning. In answer to the third question—if he is correct, treating the dead brood the same as foul brood does not have any influence so far as the cure is concerned. Perhaps some of our German bee-keepers, especially scientists across the water, can give their American cousins a little more light. While we may be, and probably are, ahead of them in practical apiculture, owing perhaps to the favorable conditions on this side, they are certainly ahead of us in scientific research.—ED.]

EUCALYPTUS HONEY.

HONEY FROM AUSTRALIA; MAILING-PACKAGES.

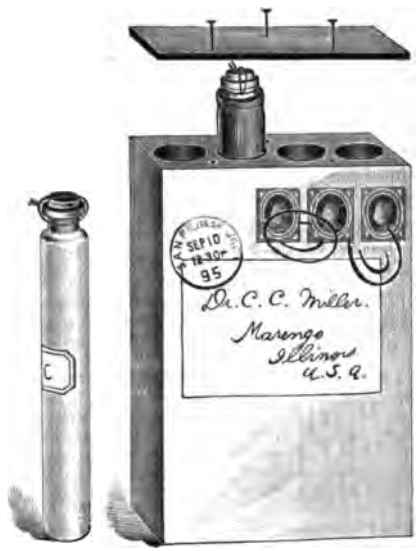
By Dr. C C. Miller.

Mr. J. D. Ward, of Sydney, New South Wales, has sent me six samples of Australian honey, all of it eucalyptus. I had no idea that, under that one name, there could be such a variety. The samples are marked A, B, C, D, E, F, and I'll try to tell you what they look like.

In the first place, however, I wish you could all see in what nice shape the samples came. They are in six bottles, each six inches long and ⅞ in diameter, corked tight, and covered with sealing-wax. In these long slender bottles they present a very fine appearance, as evidenced by the exclamations of delight of the women on seeing them. If I wanted to sell honey by sample I should copy closely after Mr. Ward's example. And the packing could hardly be improved upon. A piece of 1½-inch plank has 1-inch holes bored into it to receive the bottles, each bottle being wrapped in paper so as to make a close fit, then a thin board cover screwed on.

Describing them, Mr. Ward says: "A is ironbark and gum; B, C, D, and E, varieties of box; F, assorted gums. A and B are from my own bees, located 30 miles from the sea. F is from the coast close to the sea. C, D, and E are from the mountains."

A looks for all the world like a nice sample of light-yellow beeswax; and before opening it I had to look at the accompanying letter to assure myself it was not so. It is candied solid, and I'm describing them just as I received them, for I haven't melted them. The flavor is peculiar, and I do not altogether like it. "A little rank," one of the tasters called it. I have been told that, on becoming acquainted with this flavor, one likes it; but of course I can't speak from experience.



A MAILING PACKAGE FOR SAMPLES OF HONEY.

B is also granulated with a fine grain, beautiful in appearance, very light-colored, looking a good deal like linden, slightly more of the cream color in tint. It has the peculiar flavor in a less marked degree than A; and, after tasting it and appearing to study over it for a minute, Mrs. Miller said very decidedly, "I like it. It has a kind of candy taste."

C is very light in color, evenly granulated, but not yet solid. Mrs. Miller likes it. Emma likes it better than B, and I think I like it less. I suspect it is not the easiest thing to tell just what one does think of these samples as compared with each other, especially when not many minutes intervene in the tasting.

D is partially granulated, and is the darkest sample in the lot—at least the dullest, for it inclines the least bit toward perhaps brown as compared with the bright color of A. The flavor approaches that of A, but Emma thinks there's a shade of maple-sugar flavor mixed with it.

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E is not granulated in the least; of heavy body, clear as water, and almost as colorless—just a tinge of amber in it. It would be a very hard matter to find a sample of honey presenting a finer appearance. Emma says, "I rather like it." Mrs. Miller leaves out the "rather." I think I like it better than any of the preceding. Whether its being free from granulation has any thing to do with the preference I can not say.

F is in appearance the same as E, with just a little deeper tinge of amber. The flavor is also a little stronger, and Mrs. Miller still prefers E; but I'm not sure but I like F the best of the lot. It's not merely a milder flavor than that of A, but the flavor is different.

I intended to melt the four granulated samples; but on further thought I'll send the whole lot just as they are to Medina. You Medina people have more experience in sampling, and your judgment may not at all agree with mine.

If these samples were submitted to the palate of the general public. I suspect there would be great diversity of opinion. Some would like all of them, some none; some would like part and dislike part; and between these three there would be all the varying shades of opinion. The liking, too, might increase on acquaintance.

Marengo, Ill.

[The cut which we have made will show very nicely the style of package in which this honey came so long a distance and in such perfect order. The bottles appear to be none other than the long medicine-vials used by physicians in their hand-grips.

There is a plenty in each sample to taste and to inspect as to body and color. Many of the mailing-vials sent us are too small to get a real good taste. Sometimes I find I want a "good big taste" in order to get a fair idea of the honey.

Now, please don't ask us to supply these. Of course, if there should be a substantial demand for them we would furnish them.—ED.]

HONEY-SELLING THROUGH COMMISSION HOUSES.

PURE BOTTLED HONEY IN CHICAGO; A REPLY TO S. T. FISH & CO.'S LETTER.

By Geo. W. York.

Dear Mr. Root:—I was greatly interested in the article by Mr. S. T. Fish, of Chicago, published on page 16 of GLEANINGS for Jan. 1. I was interested for at least two reasons; viz., 1. On account of the boastful tone of the article; and, 2. For the several instances of misleading statements.

Mr. Fish says he bought two carloads of Utah honey, Oct. 26, paying cash therefor, about $5000, and that "no other firm in this city dared risk a venture of this kind," etc. The *facts* are these: The two cars contained 48,000 pounds of comb honey; but nearly 5000 pounds of it went to another commission house, which, at 10 cents per pound, was about $500 less than the amount he says he paid for the two cars of honey.

Again, I *know* that *one* other firm offered $5100 cash for the two cars; and that there was at least another firm on the same street abundantly able to buy and handle that honey. While Mr. Fish may be a big "fish" in a big river, still there are others just as big in the same old stream.

Mr. Fish also refers to their now putting up extracted honey in glass bottles for the grocery trade, and that he "can now say it is possible for the *consumer* to procure pure honey in small packages." He says, "This is something we could not say a year ago." Did I not know better. I might possibly believe such assertion. Two years ago this winter I began to bottle pure honey. and sold it through the groceries. Also, Mr. B. Walker—the tall Michigan honey-man—has, for several winters, put up pure honey in tin pails and glass bottles for the retail trade; and Mr. F. Grabbe has done the same thing for a good deal over a year past. The latter gentleman supplies about 200 of the best groceries with pure extracted and comb honey.

In view of the facts as I have given them, it shows that in one case, at least, too much personal horn-blowing is apt to be somewhat "fishy."

All the really large and reliable honey-dealers that I know in Chicago can be counted on several less than the fingers of one hand.

THOSE ATCHLEY LESSONS IN BEE-KEEPING.

I have been somewhat amused at the sparring that has appeared in some of the bee-papers—and notably in GLEANINGS—with reference to the "Lessons in Profitable Bee-keeping" that were reprinted in the *Southland Queen*, and indirectly credited to the *American Bee Journal*, only in the first issue of the *Southland Queen*, when they began. Having paid for those "Lessons" when they first appeared in the *American Bee Journal*, over the name of "Mrs. Jennie Atchley," beginning with May, 1894, of course they belonged to the *American Bee Journal*. I electrotyped them as fast as they were printed, for the purpose of putting in book form afterward, "Mrs. Atchley" paying for the electrotype plates.

Upon deciding to change the conductor of the "Southern Department" in the *American Bee Journal*, I shipped the plates to "Mrs. Atchley," and they were used in the *Southland Queen*. The correct way was to have credited them to the *American Bee Journal* immediately at the beginning or at the ending of the Lessons *in each number* when reprinting them. But the error can easily be overlooked, as many people are unfamiliar with the publishing business, and will have to profit by actual experience.

Of course, any one who so desires can print those Lessons, as they were not copyrighted

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when first published; but very likely no one will care to use them, as they cover mainly such matter as can be found in almost any of the books treating on the subject of bee keeping. At any rate, my permission is hereby given to any one desiring to reprint them, if, when doing so, proper credit is given the journal in which they originally appeared.

Chicago, Ill.

[S. T. Fish & Co. probably did not intend to misrepresent; but having looked over the matter somewhat while I was in Chicago I am sure Mr. York is right, at least in what he says regarding pure bottled honey having been sold by others than S. T. Fish & Co. The correction should be made, for, as Fish & Co.'s article stood, it was an injustice to Byron Walker and others who, we know, have handled pure honey only.

If the *Southland Queen* had credited the Lessons to the *American Bee Journal* in each issue of their own paper, there would not have been this misunderstanding When I spoke favorably of the Lessons I referred to an issue containing them next following that issue in which credit was given. As Mr. York says, it is not enough to give credit in one paper.—ED.]

A MONUMENT TO FATHER LANGSTROTH.

A FUND TO BE RAISED BY BEE-KEEPERS; VOLUNTARY CONTRIBUTIONS ASKED FOR.

By J. S. Hartzell.

I have been reading with interest the memoirs of the Rev. L. L. Langstroth, by different authors, and published in your esteemed journal. It appears more familiar to me, and I presume to the apicultural world, to call him "father Langstroth," as we recognize in his inventions a new era in the keeping of bees; and those of us who are engaged in that pursuit, and endeavoring to keep apace with improvements, recognize in him not only a standard author, but authority in all things pertaining to keeping bees for profit. We also recognize in him the inventor of what is now termed the "standard" frame and hive—he who brought from chaos, as it were, to light, or enlightened the world upon the great subject of keeping bees for profit. Much has been written concerning his worth as a Christian, citizen, apiarist, friend, and neighbor; but most astonishing to me is, of all those who have written concerning him, not one has ventured to propose to perpetuate his memory or mark his last resting-place by erecting a suitable monument, and one worthy so noble a personage as he. I desire, therefore, friend Root, that you or Dr. Miller, or some of our most worthy fraternity, formulate some system by which a taxation, as it were, of the apiarists of the United States, and all others who desire or will contribute, might set apart a certain amount for the erection of said monument; and when sufficient has been subscribed and paid in, appoint a committee to draw plans and specifications for the erection of it.

Many plans are laid for the raising of money for various purposes. One I saw a short time since requested the person addressed to send a penny for every year he was old. The amount so contributed was for the purpose of building a church or canceling a church debt—I can't call to mind which.

Now, can not a formula be adopted for the purpose of erecting a monument to father Langstroth's memory, similar to the above, or, say, send a penny for each colony of bees kept. I think all the bee-keepers should be interested in this, and feel it one of the grandest if not the grandest privilege of his life to contribute toward perpetuating the memory of so noble and Christian a man as father Langstroth.

I don't know how the brotherhood of bee-keepers feels toward applying a mite, as it were, to what I might consider a great object and a lasting tribute to the memory of the noble dead. Let us gives as the Lord requires—cheerfully.

Addison, Pa., Jan. 14.

[I am very glad, friend Hartzell, that you have set the ball rolling. Dr. Miller, with whom I talked a few days ago, was very desirous that some scheme should be formulated (for the Dandants had already corresponded with him) and put into action at once.

I know that times have been hard with bee-keepers; and I know, too, that there is a demand for money on every side; but still I believe there are hundreds of bee-keepers who would like to contribute something toward this fund, and I am therefore going to ask for voluntary contributions of whatever you may feel able to give. As some of the amounts must necessarily be small, we will not publish the list of names unless so desired by the donors. The Dadants have already given handsomely, and our firm can scarcely afford to do less. I also feel sure that other supply manufacturers will be willing to give their proportionate share.

The funds can be sent to us or to any of the bee-journals, but be sure to say for the Langstroth monument fund. When they are all received the amounts will be forwarded to Mrs. Cowan, to purchase such a monument as her own judgment and the generosity of the bee-keepers will allow.

After the monument is secured and in place, GLEANINGS would ask for a photograph of it to show to the readers the burial-place of our dear and respected Langstroth, and the last testimonial from his bee-keeping friends.—ED.]

THE HIVE MAP.

WHY IT WILL NOT BE A SUCCESS AS A GUIDE TO THE BEST HIVE TO USE.

By C. A. Hatch.

Do you realize, Mr. Editor, what a contract you have on your hands when you agree to print a map of the United States showing the kind of hive used in each place? The first step you would have to take would be to have a complete map of the honey flora of each location, otherwise there would be no difference in

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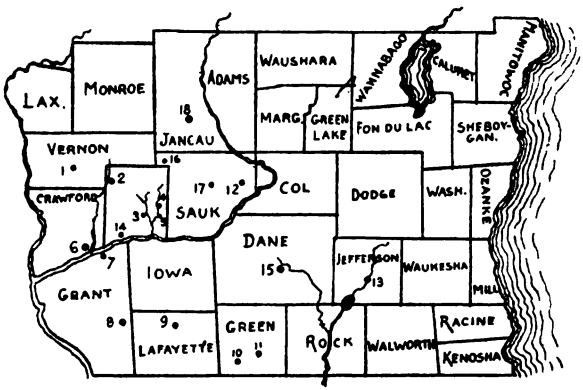
location, and, consequently, a hive that is good for one place would be a good one for the same flora in any location. For is it not an axiom that the only difference in management required for different locations is caused by different honey sources?

But are you sure that location makes as much difference in the hive question as some of us have been led to think? After studying the inclosed map in connection with the honey



MAP OF WISCONSIN, SHOWING THE SIZES OF HIVES IN USE.

flora of each place I am inclined to think that management in the spring has more to do with it than all else; and perhaps our early choice and prejudice have almost as much to do with the kind of hive used as any thing. If a beeman prefers an eight-frame hive, he has, as a rule, commenced with that kind, and has adapted his management to that; and if he is a success he thinks his hive is right, and the same is true of the ten-framer.

Viola, Richland Center, and Loyd have the same honey flora; viz., clover, basswood, and fall flowers; yet at Viola we find Mr. McCarty, an eight-framer; and at L. and Richland Center, those who use a larger hive. Climate can not make the difference, for there is not over 25 miles separating any of the places. Calamine and Platteville should have about the same honey sources, and yet France & Son's apiary is run on the large-hive plan; and Mr. Murray, at Calamine, thinks eight frames are just the thing. I am afraid that, if you were to hand this map to a beginner, and tell him to select from it the best hive for his neighborhood he would be as much in the fog and doubt as the waiter was who asked the German which he would have, tea or coffee, and he answered, "Yes."

But let us look at the map. The places are indicated by numbers, thinking that so much writing on so small a map would mix it up too much. I am not positive that I am right as to the kind of hive used in all cases; but if wrong, the one wronged can set himself or herself right by so reporting to you.

There, friend Root, don't you see location has but little to do with the matter? When you get that map complete I want a copy if it does not come too high.

Ithaca, Wis.

[I said the hive question was to be discontinued; but this article by C. A. Hatch treats of the subject in a little different manner than it has heretofore been considered. As friend Hatch presents the matter in his map, it seems to me it knocks the arguments of both the eight and ten framers into smithereens; but then, if we could see added on to the end of those lines in that table the average number of pounds per colony for the last ten years, perhaps we could better decide which gives the better results. For the present, at least, we shall have to conclude that they all get honey, and they all get good results. Why? Because each size or form of hive can be made to fit the locality and the man.

As to a general map for the whole country, if all took hold of it we should have the map; but so far only two have ventured their assistance. —ED.]

No. 1.	Wm. Cox, Viroqua;	10 frames.	Honey flora, clover, basswood, and fall flowers.
" 2.	McCarty, Viola;	8 "	" " " "
" 3.	Mrs. Pickard, Richl'nd Ctr.;	12 " (Gallup)	" " " "
" 3.	Mr. Moffit, " "	8 "	" " " "
" 4.	C. Ludker, Loyd;	10 "	" " " "
" 4.	D. Rowe, "	10 "	" " " "
" 5.	C. A. Hatch, Ithaca;	10 "	" " " "
" 5.	Late S. I. Freeborn, Ithaca;	12 " (Gallup)	" " " "
" 6.	Mr. Evans, Wauzeka;	large hive.	" " " "
" 7.	M. M. Rice, Boscobel;	"	" clover, bassw'd, horsemint, fall fl'rs.
" 7.	Late B. F. Rice, Boscobel;	"	" " " " "
" 7.	Late Ed. Pike, Boscobel;	"	" " " " "
" 8.	E. France & Son, Platteville;	"	" clover, basswood, and fall flowers.
" 9.	Mr. Murray, Calamine;	8 frames.	" " " "
" 10.	Harry Lathrop, Brownt'n;	8 "	" " " "
" 11.	Mr. Hoffman, Monroe;	8 "	" " "
" 12.	F. Minnick, Baraboo;	10 "	" " " "
" 13.	The Grimms, Jefferson;	8 "	" " "
" 14.	F. L. Snyder, Orion;	10 "	" " " and horsemint.
" 15.	D. D Daniher, Madison;	8 "	" " " and asters.
" 15.	Dr. Vance, Madison;	8 "	" " " "
" 15.	Spaninburgh, Madison;	large hive.	" " " "
" 16.	O. C. Blanchard, Ironton;	"	" " " and fall flowers.
" 17.	C. Randall, Buckey;	8 frames.	" " " "
" 18.	F. Wilcox, Mauston;	8 "	" " " "

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GATHERING THE WHEAT FROM THE CHAFF.

Question.—In reading the bee-papers I find much that appears to me as chaff, while there is some *real wheat* in nearly every number of any of them. Now, how can I separate this wheat from the chaff, and have it so I can at any time turn to and find the wheat, without reading the chaff all over?

Answer.—This is a question which once bothered me a good deal, and one on which I have written in the past; but as it is a question of importance, it may not be amiss to repeat somewhat, especially that those just starting may be able to use our bee-literature to the best advantage. We find that our successful men are those who read the most closely along their line of business, and put what they read into practice. Now, in order that we may profit by what we read we must remember it at the time we wish to put it in practice; and as much which is valuable in our bee-papers is published out of season, it is hard to remember it till the time of practice, unless we have some means to help us remember it at the right time.

While studying along these lines, a few years ago, I purchased a smallish leather-bound book containing blank leaves to the number of sixty; but it is necessary to have only twenty-four. This book I arranged similar to an assessor's, which has the letters of the alphabet from A to Z on the outside margin of the leaves. Cut the leaves just as you would to letter them; but instead of lettering them write on the little square of the first, "Jan. 1;" on the second, "Jan. 15;" on the third, "Feb. 1," and so on, giving one leaf, or two pages, for each half-month to the end of the year. When GLEANINGS first comes it is carefully read and laid away in a place set apart for it, and the other papers which I take are treated in the same way, so that at the end of the year they are in perfect order to be bound, which I generally do myself, by driving wire nails through and clinching them, which makes each volume handy when I wish to refer to them.

In reading, the most important part is to preserve the "wheat" in our literature, and make good use of it after we have it all preserved in good order. With the pressure of work that is is upon me, I can not find time to read any volume a second time to get the many points in it which may be of value. If I were obliged to read all a second time to get the points I considered of value to me I fear I should never get them at all. I read once all there is in a paper, and then I want it so that I can get at what is of use to me, in a moment, when wanted at another time. To do this, whenever I sit down to read a fresh paper I have a pencil with me; and when I find a new idea, or an old one I wish to experiment with farther, I mark it. In some instances the marks will embrace a whole article, while others call attention to a few lines. In future years, or at any time I wish to find that which is really valuable to me in my volume, all I have to do is to read the marked passages and thus get the cream of the whole year in a little time.

So far I could get along without any book or any thing of the kind; but it oftener than any other way happens that some of the best ideas are suited only to certain seasons of the year, and that season more than six to nine months from the time that I read it. As my memory is not sufficient for set times and dates, I must have some means to remind me of the valuable points just when they will be of use to me, and this was what led me to get and fix a book as above. This book is within easy reach of the chair which I generally occupy when reading, together with a pencil, so that, when I come to any ideas or passages, parts of an article, or an entire article, which I think will be of use to me in the future, I mark it with the pencil, and then jot down the page and subject in my book, under the date to which it is applicable. Thus I have all the matter which I consider valuable to me, contained in the numerous papers which I read, arranged with reference to the time it is to be used, all before me at a moment's notice in this book. On any date, between Jan. 1st and Jan. 15th, when I have time, I open this book to January first and look over all there is on this page; and if, for instance, I find "how to put foundation in sections," that being a different way of doing this from any which I had previously used, as given in some one of the papers which I have read during the year 1895; and as this is the time I am putting foundation in sections, preparing for another season's honey crop, I try the plan by way of experiment, if I chance to find such a note regarding putting in foundation in this book. To explain more fully: In one of my bee-papers I find how the honey crop may be increased without any desire on the part of the bees to swarm by unqueening the colony at the beginning of the honey harvest. As the last half of June would be when I could make use of this information to my profit, if I ever could, I turn to June 15th (by putting my thumb on that date when opening the book), and write, giving the name of the paper, the year, and the page, after which I say, "Unqueening colonies for non-swarming and a greater yield of honey." When this date (June 15) arrives I look over all that is written there; and as I come to this I take down the volume and turn to the place, and there is just what I want, at the right time, for the bees are already bringing in the

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first honey of the season. So I go to work and try the new plan on the morrow, by unqueening from two to five colonies, working the rest of the apiary in the old way till I see how this works. If the unqueening plan proves valuable I mark this place on the book with a star; or if worthless, I draw my pencil across the whole line, thus crossing it off.

If I have made this plain, and I think I have, it will be seen that I have all of real worth, to me, of many volumes in this book, while the matter which was worth only once reading is left out.

MORE ABOUT SWEET CLOVER; WHEN IT BLOOMS, ETC.

Friend Root:—I see in Nov. 15th GLEANINGS that W. W. K. wants information as to what season of the year sweet clover blooms. It blooms here from July 1st until frost kills it. It is so plentiful here that, for the last ten years, my crop of white honey has been gathered from it exclusively. For the last two seasons my crop of honey has been very light, because the clover did not seed itself, owing to the extremely dry weather.

Sweet-clover seed must be sown and make a stand in the fall, for next season s bloom. It never blossoms the same year it is sown. If W. W. K. wants to raise it for his hares, he can sow it in early spring; and if the season is a wet and growing one he could cut it in the fall. It would probably get to be nearly a foot high, and should be cut young before it gets near blooming; for, after that period, it becomes too woody to be eaten by any kind of stock. It is with hares as it is with other kinds of stock animals—they must be educated to eat it. I have tried feeding it to my Belgian hares, but they do not relish it. I presume, though, after feeding it exclusively, they would, like other stock, learn to like it.

Sweet clover is not a bad weed. You turn it under before it seeds, and that kills it. It is an excellent fertilizer when so plowed under.

G. J. FLANSBURG.

South Bethlehem, N. Y., Nov. 19.

AGE OF BEES.

Early last May I hived a swarm of Italians, and next day I found their queen dead under the alighting-board. I gave the colony a queen-cell. The weather was unusually cool at the time, and, several weeks after, I noticed that the hive was queenless; and on opening it I found that the young queen had never emerged from the cell. Laying workers being present, no effort was made to requeen. In July, noticing that the hive was very heavy, and fearing robbers, I removed the hive and substituted a three-frame nucleus hive on the same stand, and drove the bees from the old hive with smoke. They took refuge in the nucleus hive, which was furnished with frames filled with foundation. Desiring to see how long they would live without a queen, and hoping that they would draw out the foundation, I let the bees remain in the nucleus hive all summer. They drew out the foundation in one frame in a patch about 5 inches in diameter, and survived until October 16th, when the last one perished. This is evidence that bees may survive for six months of summer — an occurrence that seems a little unusual in view of what is usually taught in the books. The swarm was secondary, and the queen, consequently, a virgin, and no brood was raised, so that the last survivor was over six months old.

During an experience of four years in keeping bees I have had as many as five swarms lose their queens during the first week, and gradually dwindle away during the summer, always building crooked and irregular combs, and perishing in the fall; but I have never known bees to survive quite so long as in this instance.

Columbia, Miss., Dec. 14. T. S. FORD.

[The circumstance you relate is a little out of the run of the ordinary, and should not be taken as evidence showing the age of bees under average circumstances. When death is staring them in the face, bees have a fashion of economizing their stores, or even their energies, when it is evident the effort will reduce their numbers. If stores are scarce they will cut down or stop brood-rearing in order to save them; and you have given us an incident of how they will, under extraordinary circumstances, save their bee life. The age of bees under all circumstances can best be determined by changing the color of the bees by the introduction of a queen whose bees differ in color or marking from those already in the hive. As the new bees come on, the old bees will go right on spending their energies as before. When an Italian queen is introduced to blacks, or *vice versa*, the old bees, after a heavy honey-flow, will begin to disappear pretty fast in six weeks. After the honey-flow I have seen blacks and hybrids in a colony for six months and more.—ED.]

A GOOD STRAIN OF FIVE BANDERS.

I will continue breeding the five-banded Italians, which have been so much condemned in GLEANINGS; but I am glad to say I have a strain that has not met with so much condemnation; and as honey-gatherers have proved themselves equal to the best. I do not think any strain of bees has met with greater success in this line than mine have. Among other letters speaking of their praise I have one giving the statement where one of my "dollar" queens gave a surplus of over 70 lbs. of choice comb honey by the side of two of A. I. Root's six-dollar queens that did not store enough to winter. This is only one instance among

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many, although this is rather an exaggeration to most of them. It is unjust to class all five-banded bees as the same, although the name "five banders" is a misnomer, and should never be used. CHAS. D. DUVALL.

Satsuma Heights, Fla., Dec. 22.

[I have never claimed anywhere in these columns that *all* five-banded bees were inferior. If you can find such a statement I'll give you —let's see—our very best breeding-queen.—ED.]

THE CHICAGO CONVENTION.

I MAKE no formal report of the Illinois State Bee-keepers' convention which I attended in Chicago, Jan. 9th and 10th; but I have made various references to what was said and done, in footnotes and editorials. My report, or the remainder of it, then, will probably be made up of similar references in future. For a full detailed report, see the *American Bee Journal.*

The meeting, I am happy to say, while not large in attendance, was lively and enthusiastic. Under the leadership of Dr. Miller, real live practical questions were discussed.

Chicago is an ideal place for holding conventions. There we find the great honey-market, perhaps the greatest in the world, and there the great and enterprising newspapers fairly tumble over each other in their rivalry to get out the best and fullest report of every convention in the city. The Chicago *Record*, an enterprising 12-page paper, sold for only 1 ct., in its issue for Jan. 10 gave a fairly good notice of the convention. Some of us were a little taken back as to the way we were pictorially represented. It seems the *Record* has a fashion of giving pictures of those who figure in the various conventions that meet there from week to week. The meeting of bee-keepers was no exception. A few of the members had a good laugh at my expense over the picture that represented your humble servant with the "big head." At the earnest request of two or three I reproduce the picture itself. Well, here it is. I should have been very much "mad" were it not for the fact that the *Record* artist put a "big head" on the others. Those who received this doubtful honor besides myself were C. Schryer, M. M. Baldridge, Dr. C. C. Miller, and Editor York; but their pictures looked as much like them as a queen-bee does like a clothes-pin, and I forbear "showing them off."

SENDING HONEY TO COMMISSION HOUSES; TRICKS OF THE TRADE; SOME OF THE DANGERS TO BEE-KEEPERS POINTED OUT.

IN our last issue I had something on this same subject; and being desirous of pursuing it further while in Chicago, both in the convention and between sessions, and at commission houses that I called upon, I made it a special subject of inquiry; and I will now endeavor to give you the plain facts as I found them. At the outset I wish to say that I do not wish to cast reflections on the commission business as such. My only purpose is to point out some of the dangers, and how the misunderstandings, quarrels, and possible lawsuits may be avoided.

QUOTING HONEY AT MORE THAN ACTUAL MARKET PRICES.

Both in and out of the convention I learned that some of the houses, not only in Chicago, but other cities as well, had been making a practice of making special high quotations—at all events, considerably higher than it would be possible for them to realize in the open market. The object of this, of course, was to get consignments from bee-keepers; and in this they succeeded admirably. Well, having received the consignments these firms in many cases do not scruple to meet the sharpest competition in the open market, irrespective of what they had promised in the way of returns to the bee-keeper; and the honey will be sold for several cents lower per pound. Of course, there is complaint; but the commission house gets out of it by claiming a loss in leakage, broken-down comb honey, or poor quality all round. Again, they will claim to sell at quotations. They will quote at, say, 15 cts. per lb., and realize to the bee-keeper perhaps 8 cts. They claim that the honey was sold at 15 cts.; but after taking out the cartage, freight, commission, leakage, and other little items, they will work it around *somehow* so as to net the bee-keeper only 8 cts.

I believe I have not overstated the situation. There are many bee-keepers who can testify that they have been served this way; but it is needless to say that they are deceived by that firm only once. The trouble here is on both sides. In the first place, the bee-keeper, in looking over the market, sees the name of one firm that quotes much higher than any of the rest in the same city, and he rushes his honey off to them. If he would stop a moment he ought to see that they can not realize better prices—at least not much better—than their competitors who have been longer in the business, in all probability. But he does not think of this. He simply thinks these are better prices than he has been getting at home; and he forgets that, out of that price, must come cartage, freight, etc., and that a firm who will make this high quotation is pretty apt to make these other items much larger than they really are.

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"But," you may ask, "when bee-keepers are treated in this way is there not some redress by law?" Yes, perhaps; but, as Byron Walker said at the convention, the firm may have thousands of dollars against the hundreds of the bee-keeper, to fight him; and usually the amount involved is less than a hundred dollars; and when he comes to figure up the cost of prosecution he decides to let the matter alone. If the commission house is dishonest, it will bear on as hard as it can without involving a suit.

In the first place, bee-keepers should go to their nearest bank and inquire of the responsibility of the firm to whom they propose to ship honey; but, as Byron Walker said at the convention, a gilt-edge credit may not always mean fair and honorable dealing. The suggestion was made in the convention that a small consignment be sent first, and in the mean time inquiry be made of bee-keepers or of bee-journals who may know them. The moral is, be careful how you trust *new* firms with consignments of your honey, especially when they promise to do very much better than old firms who have been long in the business, and with whom you have dealt for years, and received honorable treatment.

ACTUAL COST OF SELLING ON COMMISSION.

At one of the sessions of the convention the question was asked, "What is the usual rate of commission charged?" The replies to this showed that some firms charge 5 and others 10 per cent. But some bee-keepers say they would rather pay ten per cent commission, and get better service, and not have a long string of items charged up against their honey, than to pay 5. But, again, it was shown that some firms charge 10 per cent, and are greedy enough to tuck on all the other items besides. This question naturally followed in the discussion:

WHEN COMB HONEY SELLS IN SOUTH WATER STREET, CHICAGO, AT 14 CTS., WHAT WILL IT NET THE PRODUCER?

The President, Dr. Miller, explained that this was a very important question. As there was a blackboard in the room he desired the convention to help him make out a table of expenses. A great many questions were asked and the answers reduced to figures, the result of which was the following table, which I copied from the blackboard. The first item, as is shown, is the cost of honey; and the next items of expense are expressed in cents and tenths of a cent:

Selling price of honey per lb....		.140
Freight.....	.004	
Commission @10%.....	.014	
Cartage.....	.002	
Loss in leakage.....	.007	
Shipping cases.....	.010	
Total expense.....		.037
Net cash to the purchaser.....		.103

Now, understand that these figures represented a fair deal on the part of an honest commission house. Of course, there may be mistakes; but there were quite a few extensive honey-producers who verified these figures, and acknowledged them to be essentially correct. In round numbers, then, if the honey sells on commission at 14, the bee-keeper himself can expect only about 10 cts. I must confess that the expense item of 14 cts. was very much larger than I expected; and if bee keepers generally knew the cost they would be more inclined to market around home rather than send away their honey to the crowed centers, subject to close competition, and perhaps in some cases dishonest treatment. If 10 cts. is all the bee-keeper himself gets when the honey sells at 14 cts. in the open market, in the hands of an honest commission firm, how much will that bee-keeper get if this same honey goes into the hands of a firm that is unscrupulous, or a little sharp in the tricks of the trade? Bee-keepers with whom I talked said they had in some cases been glad to get 7 and even 6 cts.; and when I asked them why they did not sue, they replied that the cost of the suit, and the chance of judgment in their favor, would be more than the amount involved.

Chicago is a great center for selling honey. The editor of the *American Bee Journal*, in commenting on this point, says:

"SELLING HONEY ON COMMISSION.—We have just been talking with the head of what we consider the largest firm of Chicago honey-dealers, about selling honey on commission. We asked particularly about the amount or per cent charged for handling honey; and his reply was that, on a shipment which sells for less than $100 gross, their rule was to charge 10 per cent. On any shipment selling for over $100, they deduct 5 per cent for their commission. We believe this is about right.

"The gentleman referred to above agreed with us in thinking Chicago the principal honey-distributing point in this country. As nearly as we are able to learn (and we believe it is not far out of the way), since the season for shipping honey opened for 1895 there have been shipped to the Chicago market up to this time about 60 carloads. That means about 600 tons, or 1,200,000 pounds of honey. And that would be only about one pound for each person living in Chicago! Surely that one pound wouldn't last very long — say probably a week. Then something like 50 times this amount might be consumed here every year, if it were properly distributed among the people.

"Bee-keepers have a great work ahead of them, if the public is ever to be educated to use honey as it deserves to be used. Let every one do his share to popularize the consumption of the best sweet known—honey."

I am aware that what I have said reflects rather seriously on the commission business; but I hope our readers will please bear in mind that these sharp "tricks of the trade" do not apply to *all* commission houses. As soon as one is found to be guilty of sharp tricks his quotations are dropped, so that I believe our list is now a fairly good one; but even then I think it is wise for bee-keepers, before making large

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shipments, to make careful inquiries of the publishers of bee-journals, as well as of the bee-keeping friends, who may be able to give them some information. We will ourselves, free of charge, give you the standing of any commission houses, whether they quote prices for us or not. We keep in our office both the Dun and Bradstreet Commercial Agencies; and besides that we have other facilities for investigating the responsibility of any firm. It is true, we may be deceived in the reports, and may be deceived in the representations of the firms themselves; but we will endeavor to give you an honest opinion, and one very likely that may save you hundreds of dollars. It is peculiarly provoking to know, for instance, that you can sell your honey at home for 12 cts., and then send it to the city, expecting to get 14 cts., then realize only 10 cts., and perhaps a good deal less.

SELLING HONEY OUTRIGHT.

One commission firm with whom I talked (S. T. Fish & Co., of Chicago) expressed their purpose of buying, in the future, honey outright, which I am sure will be to their advantage as well as to that of the bee-keepers. Then it will be known in advance just what the honey is to bring, and the bee-keeper can decide for himself as to whether he will let the honey go or not. The bee-keeper gets his money; and if the commission house can make two or three cents a pound on the honey, that is their privilege; and if they lose two or three cents, that is their loss and not the bee-keeper's. The whole thing will then be a straight deal.

But on the other hand, with honest houses sometimes more money is realized when the honey is sold on commission than when sold outright. You see, the point is right here: The buyer, being uncertain what the market price will be in the future, desires, if he pays cash down, to buy close; and the probabilities are that he will buy at a point where he will ot lose.

ADULTERATION IN CHICAGO.

The matter of adulteration received considerable attention at the convention. The editor of the *American Bee Journal* made the statement that, in a walk of five minutes from the convention room, he could take us to about 30 places where they were glucosing honey. When I called upon one commission house, their representative said that, if I had time to go with him, he could take me to places where they made no concealment of adulteration; that all I should have to do would be to assume the role of a buyer, and state that I wanted "cheap goods." In fact, the mixers would be willing, he thought, to tell me *how much* glucose they put in, so that I might know just what I was buying.

You see, friends, the point is right here: These houses are safe enough in adulterating so long as they sell the goods for just what they are—glucosed honey; but if I, a buyer, am dishonest I can take these same goods and distribute them out to the retail trade, or to consumers direct, and label them as pure honey or not, as I choose. If I leave off my name and address, there is no one liable except the one who makes the actual sales to the consumer direct; and if he is convicted of selling adulterated honey he will be liable for only the trifling amount sold. I tell you, friends, the situation is a bad one indeed.

A few days ago we received the following letter from a firm whose name I omit. The letter speaks for itself:

> Have you any empty honey-comb—that is, comb from which the honey has been extracted? We want it to use in selling strained honey. If you have not, any information which you can give us as to where we can procure the same will be appreciated. Also please quote prices.

What in the world do these people want to do with empty comb, unless it is to put it into glucose mixture, and palm the whole off as pure honey? By the heading of the letter I notice the firm advertises syrups, molasses, jellies, and preserves; and in "pure" white letters engraved on a black background, are the words "Puritan Maple Syrup." Puritan nonsense! Any firm that wants to buy empty honey-comb for the purposes specified above *probably* would not hesitate at all to sell glucosed syrup as pure maple.

Let me suggest, as a caution to bee-keepers, that they be a little shy of men who make a specialty of syrups, molasses, and preserves, especially when they claim to be manufacturers and refiners. It does not necessarily signify that they are dishonest, but the temptation is great, and some of them are not overscrupulous.

If Mr. York's statement can be relied on, and I have no reason to doubt it in the least, from some things I did see and hear, and if the representations of the house referred to are true, then it is time that bee-keepers were asking themselves if there is any remedy. I look to the Union itself, when it shall be finally reorganized, to give us some relief. I look to the bee-journals and bee-keepers themselves for assistance. I look toward new food laws, and honest officials to see that they are enforced. The Lexow investigating committee of New York, and similar committees as well, in Chicago, give me hope that a good time is coming *some time;* and that "time" will come sooner providing we do the right thing at the right time.

Now, dear friends, in closing I hope I have not given a picture that is too black. I have tried to give you one that is true. Perhaps some of you may feel that it should have been held back and "covered up;" but, dear me! what will become of us if we continue "covering up," and keeping "covered up" such sort of work as this?

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OUR HOMES.

And the Lord God said, It is not good that the man should be alone. I will make him a helpmeet for him.—GEN. 2:18.

A month or two ago, when there was much discussion in our household in regard to meat diet, etc., among the different members of our family, Mrs. Root made a remark something like this:

"Look here, all of you. I eat what I choose—take no medicine at all, no dieting, yet I am the healthiest and strongest one in the whole family."

Now, this was partly true, yet it needs a little modification. Mrs. Root has for years worked more hours a day, probably, than any one of us. She goes outdoors bareheaded and barehanded, in almost all sorts of weather. She keeps warm and comfortable when everybody else is chilly; and we have attributed it a good deal to the fresh, vigorous strain of blood that she brought with her from "Merrie England," years ago, when she was only seven or eight years old. Some little time before the holidays, however, she complained of being very tired. We urged her to take a rest, and proposed to her to take our meals in the dining-room over at the factory, so as to relieve her from the monotony of grinding and cooking the lean meat three times a day, which she had been doing for four or five months before that. There was plenty of willing help all around her, it is true; but others were not so careful to cut off every little bit of fat and gristle; and when she got all ready to do the grinding, it was cheaper to do it herself, many times, than to hunt up some one else, especially when they were off at school or over at the factory at work. Thus it passed on. She has never been sick in her life—at least, not enough to call it sickness; notwithstanding, she has for many years been subject to sudden and acute attacks of pleurisy. She has always, however, so persistently objected to calling in a doctor, or even taking medicine, that she has so far recovered of her own accord, without any assistance.

About a week before Christmas she was taken with one of these usual attacks of pleurisy. She thought she had caught cold, but it did not act exactly like a cold either. She had slight chills and some fever; but when we talked about a doctor she declared she always had such chills and fevers with her attacks of pleurisy, but that, if she was careful about taking more cold, they always went away of themselves sooner or later. Her statement, that she ate what she pleased, is true. It is also true that, after cooking so much meat month after month for the rest of us who were dieting, she seemed to get a dislike for meat herself, and ate very little of it. Ernest and I had been urging her for some time to have Dr. Lewis, of Cleveland, make an examination, especially on account of the tired feeling she had complained of, and the difficulty of breathing when she lay on a particular side at night. Perhaps I might say right here that one great trouble of her life has been that she has not been able to sleep nights as I do; and she rarely if ever makes up for it by sleeping daytimes. During this attack of pleurisy, the difficulty of taking a good long breath had kept her awake much nights, and she was suffering from want of sleep. Finally the whole family protested, and said that she must have a doctor.

On one Monday morning, she had slept but little; but she so strongly insisted on getting up and starting the fire, etc., for washing, before the others got around, that she was permitted to do so. She had slept so little that she longed for the morning to come. When I got back to breakfast, however, she was lying on the lounge, and I declared at once I was going for a doctor. She urged, however, that I should simply state the case to him, and tell him not to come down until further orders. He indorsed the treatment I had advised—quinine internally, and painkiller externally where she felt the pleurisy most, and thought she would get along. As she did not get any better we decided the doctor would have to be called. Then she declared she could not take the medicine the doctor would surely prescribe. It had been a great task for her to take even quinine put up in capsules. Some one suggested that we should call a certain homeopathic doctor (a distant relative by marriage), for she could stand his "little pills" or comparatively harmless doses. As soon as he came he said something like this:

"Mr. Root, why did you not send for me a *week ago*, or, better still, ten days or *two* weeks ago? This woman has 'malarial fever,' and has been having it for a week or so past. She must remove her clothing, and go to bed at once, and not get up again without my orders. We will do what we can, but she is a very sick woman."

He afterward told me that we should have to procure the very best nurse that could be found, and take every precaution, for a siege was before us. Perhaps a knowledge of the real state of affairs had something to do with it, for she seemed to give way and break down, as it were, all at once. Her determined resolution, that she was going to get well without any doctor, had probably kept her up. Every thing was done that could be done; but the doctor's predictions proved correct. The pleurisy was really a secondary affair, or a side issue, in the matter. The doctor said that I was quite excusable for being misled by it; but the minute he told me, then I recognized the well-known symptoms of my own case, a little over four years ago. One of the worst difficulties in the way of her recovery met us almost at the outset. She has always had trouble, as I have mentioned, about getting sufficient sleep when comparatively well. The trouble now was aggravated. Our readers of a few years ago will remember what I said about bromide of potassium. I suggested it; but the doctor said he would have to exercise great care in the use of all such remedies, with the dangerous symptoms that were confronting us. There was a tendency toward typhoid fever a little further along; and the pleurisy had already affected one of her lungs so that pneumonia might set in at any moment. Malarial fever and typhoid pneumonia was not a pleasant combination to contemplate. The wished-for sleep did not come—at least, it did not come very much with the bromide. Besides, the drug did not work as nicely with her as with myself and many others. Other remedies for inducing sleep were tried, and finally chloral; but none of them were sufficient to cope with the terrible nervousness and delirium that were setting in. All her thoughts seemed to be running continually on having plenty of meat in readiness for her loved ones. Her imagination was filled with broilers, meat-grinders, pans, and kettles, and the various paraphernalia of the last work she had been doing. Just one illustration:

At about this time the women-folks at the factory sent to a florist for a beautiful bouquet of flowers, which was sent into the sick-room as a reminder of their sympathy and regard. When the flowers were shown to her, and she was told where they came from, they brought

tears of gratitude to her eyes; but in a very little time they had to be removed from her bedside. The doctor had cautioned us repeatedly against any excitement. Everybody was kept out of the room except the nurse, one of her daughters, and myself. The minister called; but it was thought best not to permit him to speak to her. While he was in the other room, however, he heard her calling to her attendant to hurry quick, for the water was "boiling over" in the vase that held the flowers. When they carried the flowers to her, and assured her they were perfectly cool and fresh, and the water was *not* boiling at all,* she smiled at her mistake; but almost before they were out of sight she was worried again about the same thing. Even the flowers she had admired so much, and which seemed to do her so much good, seemed for the time being a disturbance to her feverish, wandering mind.

Pretty soon there was talk that even *I* should not be admitted to her room. Very likely these friends were right; but it seemed the hardest of the trials I was destined to bear. With all my experience it seemed I had not yet learned the tact that is needed in a sick-room. It may be I worried her by my awkward speeches, even though made with the best of intentions Any little thing seemed to throw her naturally cool sound judgment out of balance. The crisis drew near. She had not slept to do much good for days, and the bromide, and even the chloral, did almost no good. She begged for an opiate; but the doctor assured me it would be almost dangerous, with the tendency exhibited at that time toward pneumonia. Nature was doing its work, and the fever would soon be at an end; but it was a dangerous crisis. A little mistake, the merest trifle, might result fatally, or, missing that, her mind might lose its balance and never recover. Most of you know how often such things happen.

I have told you before that affliction and trial often bring us new experiences. Sometimes we are thus taught lessons which we *could not* be taught otherwise. During the days and nights that followed I had some new experiences. I have told you about my little prayer, "Lord, help!" all along for years past. A month or two ago I spoke of asking God's help when the water-pipes got out of order; and again when I was seeking to rescue a fellow-man from the grasp of the evil one. I told you of that surgical operation at Battle Creek, when I could do nothing to help except to pray that the great God of the universe might give wisdom and skill to the surgeon. The lady whom I prayed for is now alive and well.. I have been a praying man for the past twenty years or more, as you know; but I never before in my life had had any experience like this. I have heard about wrestling in an agony of prayer. I realized something of it then. Now, please do not misunderstand me, dear friends. It would ill become me to tell you of any thing that might sound like boasting of the number of times that God has listened in answer to *my* prayers. While I prayed during this season of anxiety and trouble I recognized that thousands have prayed for loved ones before, and God has not seen fit to grant the request. The great Judge of all the earth will *surely* do right; but we are forced to conclude that many times it is his will that we should be schooled by having the loved ones taken away in spite of the prayer; at least, God does not see fit to give us knowledge and wisdom, even in answer to prayer, to avert sickness and death. I felt that, through all my prayers, the thought should run, "Nevertheless, thy will, not mine, be done." Please remember, dear friends, that even the prayers of Christ Jesus, the son of God, were not all granted. God did not deliver him from that terrible cup: but he gave him grace to bear it. I was obliged to face this matter of the possible loss of my dear companion and helpmeet as I had never faced it before. I went over again and again the lives we two have passed together. I remembered how faithful and loyal she had been to my unworthy self in all these many years. Why, dear friends, I never understood what the words *loyal* and *faithful* and *true* meant until I knew her—no, never till *this* crisis in our lives. All through the day something would come up where I wanted her counsel. Things had gone wrong, and I was tempted to right them with my natural vehemence. But it has been for so many years a practice of my life to first consult her, and be guided by her gentle charity, rather than by my own vehemence, that I felt as if a part of myself were gone when I could not talk to her about our affairs. A dozen times a day I would say to myself, "Well, I will go right over and ask Sue what she thinks about it." Then came the awful truth, "Why, the doctor has actually thought it best that I should stay away from her sick room unless she should call me." In a little time the same experience was gone over again. But the question came up as to what could be done to bring the much-needed sleep to the loved sufferer. I was debating it almost constantly; and *again* and *again*, without thinking what I was about, I would say to myself "I will ask Sue what she would do in such a crisis." Then it would burst upon me. "Oh my God! *she* is the one that is in danger. It may never be my privilege to consult her again while God permits me to live on this earth." And then I began groping in the darkness, and questioning as to what I should do without her for a counselor. I thought of my other friends and relatives. I remembered I had Ernest and John to consult with. They were wiser in many matters than the dear wife; but they were *men*. There are many delicate things in life—there are matters that pertain to spiritual things, where I do not want a man's counsel. I want a woman, with her great charity and woman's intuition. Well, there were other women. There were my own daughters. Yes, *thank God*, they are *her* daughters, and they may in time have her experience and gentle charity; but they are all yet young. There is nobody in this *whole wide world* who can *begin* to take her place. Perhaps I might say right here that my mind began to turn toward my eldest daughter, Mrs. Calvert, as it never had before; and I asked God to forgive me that I had never thanked him for her and the other daughters as I should have done.

With all these great trials, the more I prayed, and especially the more I prayed for the influences and counsel of the *Holy Spirit* in this time of trial, my own unworthy, heedless, selfish life came up before me. If I understand correctly, one of the principal offices of the Holy

*It seems a little strange that malarial fever should cause such queer visions of water, slops, and dampness. During my second attack in Portland, Ore., one night I could not sleep, because, whenever I closed my eyes, I saw my boots, that stood near my bed, full of water, and running over. Again and again I raised up and leaned over to satisfy myself. There were the innocent boots, as dry and warm and comfortable as could be, on the carpeted floor. Just as sleep began again to spread its balmy wings about me, there were the boots brimful of water pouring over the sides of each boot-top. The raindrops on the roof outdoors perhaps suggested a part of the illusion, for you know it almost always rains in Oregon, in winter.

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Spirit is to show us our faults and our shortcomings. Perhaps we as a family all needed the severe lesson God was teaching us. We had got into a fashion of letting mamma bear too many of the burdens of the household. Her tasks were, it is true, self-imposed. She did them willingly—nay, more: she did them *lovingly;* and so it got to be a sort of *fashion* to leave things where we used them last, scarcely thinking how much of her time and strength it took to put away things after us—to keep the house neat and tidy, and to minister to *all* her loved ones. Jesus said he came not to be ministered unto, but to minister. Now, we should be very careful not to let the *mother* of the household appropriate *all* of this beautiful text to herself. Sometimes nothing but affliction and trial like the one we were passing through will help us to realize how we have been living. Oh what resolves, through those days of anxiety and suspense, to do better, whether God should hear my prayer or not! The climax was coming. Our heavy shoes or boots were exchanged for something that would make no noise; and then we went about the house on tiptoe. Even the nearest friends kept out of the room. The doctor confessed he was unable to produce any thing that would quiet her nerves and not be in danger of doing more harm than good. I was told she begged for morphine. I went into the room on tiptoe. As soon as she saw me she put out her hand and said something as follows:

"Dear husband, can't something be given me to make me sleep? I shall surely go wild, and lose my mind, unless sleep or rest comes to the aid of my shattered nerves. If morphine will not answer, please give me some chloroform. Have you no chloroform in the house—nothing to give me a moment's rest? I can feel that I am soon to lose consciousness if this terrible strain goes on; and if it is to be, I almost long for the time, if it will help me to be unconscious of my suffering."

The nurse stepped out of the room just then. I had long been feeling that it was my duty to pray *with* her, as well as for her; but I knew my prayer would have to be brief—that she must not be distressed or frightened. The opportunity was before me. I knelt down by the bedside, just as we two had done every day of our lives for years past, and prayed, as nearly as I can remember, as follows:

"O Lord, have mercy on thy children in this their great trial. We are weak and helpless, but thou art mighty Have mercy on the dear wife, and give her the sleep she needs so much, if it be consistent with thy holy will. Amen."

I then got up, pulled a chair toward her bedside, took her hand in mine while I placed my other hand across her bewildered brow, praying mentally with every breath I drew that God would answer our prayer. There was no mistake about it. She was becoming more quiet. The labored breathing, the nervous, fidgetty unrest, were quieting down. In fifteen minutes she was asleep.

"Oh God be praised!" was my mental prayer, while I scarcely dared breathe. Her sleep was somewhat troubled; but it lasted perhaps a quarter of an hour, and she awoke much relieved. I remained by her side, and she slept a little again. The doctor thought the chloral would perhaps now help her to get rest. It did so, and the crisis was past. In the morning the fever had abated perceptibly. No more chills of any account followed, and she commenced to recover. Some of you may ask why I had not knelt by her side and prayed as I did, before. My reply is, that it was somewhat a question as to whether such a course of proceeding would have been wise or not. She was already nervously unstrung. In her usual health the thought of dangerous sickness, or even death, would not have disturbed her at all; but at this time any little thing, even the flowers, for instance, was in danger of tipping the delicately poised balance in the wrong direction. When in her distress she *appealed* to me, then was my opportunity. All of the doctor's remedies produced exactly the effect he said they would. He told us there would be a crisis, and almost named the day when it would probably come. After the fever left, the pleurisy set in again with a cough that was somewhat alarming. By careful nursing, and the use of recognized remedies, the congestion (if that is the proper name) in that one lung was arrested, and recovery followed quicker than the doctor or anybody else had anticipated.

Concluded in our next.

THE ANTI-SALOON CONGRESS AT COLUMBUS, O., ETC.

It seems a little funny that, just as soon as I get into one of our large cities, somehow or other I seem to gravitate straight toward a saloon. Now, you need not laugh, for I am talking in sober earnest. By some fatality I also seem to gravitate toward one of the low-down sort. May be you have heard of *other* people who seem to have the same bent. Again, this thing comes about when I have not the remotest idea of going into any such place at all. Seems to me I am making matters *worse* instead of better, so I think I will tell my simple story.

You see I am one of the executive committee; and when I stepped from the cars out into the streets of the great city it occurred to me, as I was going to meet a good many professional men and great scholars, it was no more than fitting that I should step into the first barber-shop and be slicked up generally. Just as I was about to take my seat in the chair, however, I very innocently asked the barber to direct me to the wash-room. There, I have forgotten something.

I did not first go into the barber-shop after all. My first stop was at the Board of Trade rooms where they were registering the names of temperance people. There were a dozen clerks, men and women, just making their pens fly; and when a spruce young chap asked me what church I belonged to I said, "Why, when I am at home I go to the Congregational; but when I am away I seem to belong to the nearest church at hand."

This seemed to be a sort of innovation on the rush of business, for the whole crowd began to laugh, and finally the clerk spoke out:

"Why, this is A. I. Root himself, just as sure as you live."

Then a nice young lady pinned a beautiful silk badge on my coat. I soon forgot all about the badge, however, and now let us go back to the barber-shop.

In answer to my request, the barber looked at his partner, and smiled. I do not know but there was a bit of a wink along with the smile.

"My dear sir, in order to get at the wash-room near by, you will have to go through the saloon."

Now, I did not feel sure just then that he was

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talking about a saloon where they sold drinks; besides it was almost time for committee meeting, and I was in a hurry; and, besides all this, why should I be bashful about going into saloons when the straight path of business seemed to lead right through them? I concluded that, if saloon-keepers could stand it, I could, and so I rushed ahead. The obliging barber was going to send a boy along, but I told him I could find the place, without a boy, and then he and his partner smiled again. I went down some steps into a dark place, pushed one or more curtains out of the way, and heard the clinking of glasses and the usual low-lived talk. Time was precious, however; and as I did not see any thing that looked like a wash-room I boldly walked up to the bar and asked to be directed. I noticed a considerable falling-back as I came up. The bartender's face colored up; but when I propounded my innocent question he seemed to draw a long breath of relief, and very courteously directed me. After I came back to the barber-shop I noticed their smiles and exchange of glances again; and then for the first time it occurred to me that there, right on my coat, was that white silken badge, and on it were printed the words:

ANTI-SALOON
CONGRESS
1896.

Now, you will hardly believe it when I assure you that, in my absent-mindedness, it had never occurred to me it was that badge which had attracted so much attention in the barber-shop and in the saloon until that moment. My first impulse was to think that I had perhaps been unwise to wear that badge all over town as I had been doing. Then I concluded that the badge was nothing to be ashamed of any way, and I finally decided to keep it on, and I rather rejoiced in the privilege of wearing such colors, even if I did innocently push them into a saloon through the back door—a saloon, in fact, where screens were up in front, and little curtained corners and dark places in such plenty that one could hardly be expected to get through without a guide. While cutting my hair something was said about my badge; and the boss of the shop said something as follows:

"Mr. Root, the man who stands behind you cutting your hair is the one who pushed through the law that compels every barber-shop in Columbus to stop work on Sunday, and to remember the sabbath to keep it holy."

When he finished he said if I should be in Columbus over Sunday now or at any other time, it would afford him great pleasure to have me attend their church, and be introduced to their minister. Then he stepped to a drawer, and from a heap of little circulars he handed me one containing the following:

TALKS TO BREADWINNERS.

WHO ARE BREADWINNERS?

All who, by honest toil, are earning their bread are breadwinners.

If you have no Church Home we want you at the Second Presbyterian Church.

Sunday Services.
10.30 A. M. and 7.00 P. M.
Sunday-School 9.15 A. M.
Y. P. S. C. E. 6.15 P. M.
Prayer Meeting Wednesday Evening at 7.00 o'clock.

Note.—88,000 people in Columbus don't go to church.
COME.

Permit me to say here before going into details, that the Anti-saloon Congress in January, 1896, was the most enthusiastic meeting I ever attended, and never before was it my privilege to see so many great orators assembled at once on any platform. In our next issue I propose to tell you something of their work, especially since an Anti-saloon League was formed in Washington, D. C., on the 17th of last December. The Ohio plan was adopted; and the war-cry that "the saloon must go," will now soon be heard in every State of the Union. As the movement now no longer belongs especially to the State of Ohio, I shall feel free to give it a little more space in our journal than I have heretofore.

The speaker for the first evening was to be Frances E. Clark, editor-in-chief of the *Golden Rule*, and on that first evening I begged our State Superintendent, Howard H. Russell, to give me a brief note of introduction to Mr. Clark. Do you know why I begged for ten or fifteen minutes of his time, dear reader? You can perhaps guess why, when I tell you that the *Golden Rule* has been prominent among religious papers, not only in advertising Electropoise, but it has given it one of the strongest editorial notices ever given by any paper. I have again and again remonstrated with the manager of the advertising department, but in vain.

Francis E. Clark is a much younger-looking man than I supposed. Perhaps the words "Father Endeavor" have given the impression that he is older. And, by the way, he is one of the most gentlemanly and accomplished men it has ever been my fortune to meet, even if he did, at least for a time, rather seem to defend Electropoise. He is a very careful man in his talk—much more careful than A. I. Root. I told him how it pained me to see a paper that had become such an exponent of good morals to our *children* giving place to such a fraud as the Electropoise, even in its advertising department. He did not make much reply, however, but courteously allowed me to go on. In attempting to report any part of that ten-minutes' conversation, may God give me grace to mention nothing that might cause even friend Clark to wish I had not given it this publicity. It is a matter of serious import, dear friends, and this thing *should* be made public as fast as we can get at the real truth of the matter. Said I:

"Friend Clark, if a man assured you that he and his family had been greatly benefited by having a horseshoe nailed over his door, what would you think of him?"

"I should think, Mr. Root, that the man was mistaken, or that, if any help had come, it had come through his imagination, and not through any virtue possessed by the horseshoe."

"Good! Now if I can suggest to you some means of proving to your satisfaction that Electropoise is no more a scientific apparatus than the aforesaid horseshoe, my work will be speedily done."

He admitted, of course, that electricity had nothing to do with the curative virtues of the thing. He said the proprietors did not now claim there was any electricity about it.

While this is only partly true, we may let it drop for the present.

"Now, look here, doctor; if electricity does not pass along that wire cord, what agency or force does it carry? Heat, light, and electricity are the three imponderable agents. Heat may be carried by a wire sufficiently large, only a few inches. Only electricity travels over any extent of wire or metallic cord. If these people have discovered something else that does carry virtue along a wire, it is a *new* force or a new agent unknown to science, and would make a

man or *company* immortal who could show proof of it. No scientific test known to the world can show any force or agency *whatever* brought into play by this senseless apparatus."

"But, Mr. Root, shall we not base our testimony rather on the witnesses—the good honest men and women who have been *cured?* What about these?"

"Just one illustration among the many, friend Clark. Schlatter of Denver—you know of him, of course?"

He nodded.

"Only this week a woman with whom I am well acquainted told me she had visited Schlatter and seen him perform his wonderful cures. She said a woman came there blind. Schlatter touched her with his hand, and she went away rejoicing in her sight. You know, friend Clark, of the great amount of testimony—the *bewildering* testimony—in regard to this man's wonderful healing powers. Now tell me—can you for a moment believe that he has been given miraculous power that he may do these things?"

"No, Mr. Root, I do not believe he has been given miraculous power."

I gathered from his smile that he and I thought alike in regard to this matter. The present age, or the last year or two, have seemed to furnish more cases of wonderful cures along this line than any age before us. Then I urged that, even if the apparatus had done or was doing good, the price was too great. Charging *fifty times* the value of a thing can not be honest business.

"But, Mr. Root, if you go to a doctor you have to pay for things much in this way."

But in this case we have the benefit of his skill, past experience, and intelligence. He tells us *what* to take and what not to take."

"But suppose you do not go to a doctor. You go into the drugstore and pay a dollar for a bottle of medicine."

Well, dear friends, I had to give up a little right here. When you go into a drugstore and pay for a bottle of medicine, you do come pretty near—at least a good many times you do—paying fifty times the real value of the thing you buy. Let us be consistent, though, and say *ten times* the real value. A bottle of medicine probably costs the manufacturer 10 cents, and it sells for $1.00. Of course, the advertising costs a good deal, and the purchaser is expected to pay for said advertising. Friend Clark did not say so, but editors of Christian papers have told me in substance that it is the fashion nowadays to charge a dollar for things that cost only a few cents. Perhaps we should say it is the fashion where we can find ignorant people enough. Now, I protest right here. Farmers, gardeners, and the great mass of people at large, *do not* get any such profit on what they sell. I wonder if these medicine-makers and city people, with their abundance, have any idea that the farmer who sells potatoes at 25 cts., and wheat for 50, gets even four or five times what the thing actually costs them. There is a tremendous wrong right along in this line. I do not believe a man can be a good honest Christian, and be willing to take any such prices from his friends and neighbors.

As I took my leave, friend Clark, in a piece of courteous pleasantry, said I might give Electropoise the credit of having done at least one good thing in its career. It had enabled him to make the acquaintance of A. I. Root, of whom he had often heard; and as we shook hands at parting he expressed a wish to meet me again whenever it might be convenient. Before leaving I said something like this:

"Of course, I have called on you to suggest, and not to *dictate*, in regard to your duty. But I do hope, dear friend, that you will investigate more fully in regard to this matter, and see if I am not right in thinking there is a very great need that special care be taken that a periodical taking the front rank as a *spiritual teacher* in the best morals of our land, should be careful of even its advertising pages, and more careful *still* of its editorial utterances in regard to things of this kind." He smilingly promised he would heed my suggestions.

ALFALFA ONCE MORE.

Many are continually asking what alfalfa is like, and others are sending in plants inquiring if this, that, or the other, is alfalfa. Sweet clover has also been confused with it. To tell the truth, the two plants are, in many respects, very much alike. On this account, we have decided to give still another picture of alfalfa. The cut shows a branch of a plant in bloom; also enlarged views of the seed and seed pods. Any one should be able to decide correctly, from the branch, flowers, seed-pods, or seed.

ALFALFA-PLANT IN BLOOM; A B, SEED-POD; C, SEED.

This cut, like the ones shown last month, was kindly loaned us by the U. S. Department of Agriculture. We take pleasure in submitting these pictures, because they are so modest and correct, especially when compared with some of the exaggerated pictures in some of our seed catalogs. The small picture given in our last issue was that of an alfalfa-plant six weeks old. The large one represents a plant about three years old. Permit us to say once more that any one who contemplates making any test of alfalfa at all should send for Farm-

er's Bulletin No. 31, Department of Agriculture, Washington, D. C. In the alfalfa bulletin we find nothing in regard to its value as a honey-plant. It seems a little strange that such a complete and exhaustive treatise should omit to mention that the plant produces some of the finest honey in the world, and it has for several years been shipped by the *carload* from regions where alfalfa is largely grown. In talking with the officer in charge of the government bulletins at Atlanta, he said they would have been very glad indeed to incorporate the facts in regard to its value as a honey-plant had somebody furnished them in time.

THE BUSH LIMA BEANS.

The matter may now said to be settled. Just as good lima beans can be grown on bushes as on poles, and therefore there is nothing to hinder growing them by the acre, and at present prices it will pay big and no mistake. They are quoted in most of the seed-catalogs at from $7 to $8 a bushel; but if they bring only $4 or $5 it will pay better than almost any other crop I know of. And I am reminded of another kink in the business this 14th day of January, 1896. Last fall, before we got through picking and selling them green we had a frost as you know. It killed the bush limas—that is, enough to stop their growing, but it did not hurt the beans inside of the pods. We gathered them all, green and ripe, and took pains to get them dried thoroughly, even the green pods—and thrashed out the beans. After being put through the fanning-mill they were sorted over by hand, it being an easy matter to tell the ripe beans from the others. Of course, the beans that were not ripe and dry when the frost came would be fit only to cook; and I was agreeably surprised to find that, when cooked, they are just about as nice as green beans just gathered. We have been told before that lima beans might be gathered green, and then dried, and be very nice for winter; but it was a new idea to me that beans caught by the frost might be utilized in this way. They are ever so much nicer than the hard dry matured bean. I think if dried green beans could be put on the market, after people once get a taste of them they would be an important food product. You see, they can be kept indefinitely; but when you come to cook them they have almost the flavor of new green lima beans.

A NEW BEAN THAT YIELDS BUSHELS FROM ONE SINGLE STALK.

Friend H. J. Rumsey, of Boronia, New South Wales, sends us eight sample beans, with a letter of explanation containing the following:

I have introduced a new bean—the Tongan—which in Sydney and warm climates is about the biggest acquisition of the times. *One* plant will yield bushels of beans of delicious flavor for several months; and being perennial it will stand and grow bigger year by year until it covers hundreds of square feet. I am sending you a packet for you to send to some of your Florida friends to try. It should flourish there.

Well, well, well! We are ahead of the seed catalogs this time, and no mistake—a single bean-plant yielding bushels of beans, and covering hundreds of square feet! Friend R., it almost makes me feel sorry that I do not live in Florida. But we have a greenhouse right across the way, and two of the beans you sent us will be planted there at once. I will explain to our readers that the bean is a good deal the same shape as our common ones, and about the size of the York State Marrow. But it is jet black excepting there is a sort of ridge or excrescence on the edge, reaching from one end to the middle of one side, and this is snowy white. It looks a little like the snow-white comb on the head of a fowl, providing said fowl were jet black; or you might say a sort of topknot. Now, there are only eight of these beans in the United States. I will plant two in the greenhouse now, and two later on. Two more we will send to friend Hart, in Florida, and the other two to friend Poppleton, who, as you know, is still further down in the tropics. Is it not a good thing that GLEANINGS goes all over not only Uncle Sam's domain, but pretty much all over the whole wide world?

There is one thing more about this bean; Friend Rumsey says the seeds will come up quicker if soaked in boiling water before planting, and he has made the word "boiling" emphatic. Truly it must be a *tropical* plant. Now you see I shall have a bean story to write up once a month or oftener.

By the way, my Thoroughbred potatoes had a backset when we had that freeze away down below zero. They were not killed, but they still look sick and discouraged from the effects of the blizzard.

SUB-IRRIGATION FOR GRAND RAPIDS LETTUCE.

The following, from our friend Eugene Davis, who gave the world the Grand Rapids lettuce, will probably be read with much interest by all the gardening friends:

Friend Root:—I began to think you were losing interest in greenhouses, growing lettuce, etc.; but when the last number of GLEANINGS arrived I saw you were as enthusiastic as ever in gardening. I have just read Bulletin 61 of the Ohio Experiment Station, and I agree with you that it is the best thing on lettuce-growing I have ever read. The directions are so plain that any beginner can easily follow them.

I tried sub-irrigation on part of a bench last winter, but it did not prove very successful, owing to the benches being old, and the cross-pieces were too far apart, causing the boards to sag, and cracking the cement. I am trying it again this winter in a small way, wishing to give the method a fair test before trying it on a large scale. I have raised and sold one crop, and it is a week or ten days earlier than the surface-watered. As to the weight I can not say, not having cut the rest of the bench.

I made the bench water-tight by using two rolls of water-proof rubberoid roofing,* which will cover a space 10x20 feet. There are nails and paint for painting the seams. I use 2-inch tile, 2 feet apart crosswise of bench. The cost of the tile and paper was $5.00. I can't say how long it will last, but it is all right for this season. EUGENE DAVIS.

Grand Rapids, Mich., Jan. 18.

GETTING A POOR FARM INTO GOOD CONDITION.

Friend Root:—I am about to take hold of a farm which has been abandoned for some years except as a pasture. It is poor and worn out, with little or no grass, and is nearly all in daisy. The soil is 6 or 8 inches deep, and a light sandy loam, with some loose rock. I want to get it into clover; but it is too poor to get a good catch, and I intend to plow and give it a heavy coat of lime, which will put it in better condition to take the clover and oats.

Now, I want to get some paying crop on part of the land (10 acres), such as potatoes; and lime is bad for them. Do you think I can safely plant them, using 1500 lbs. of No. 1 chemical fertilizers per acre, and giving them good culture, such as recommended by Mr Terry and others? Mr. Terry, I know, does not think much of chemicals on *his* land. What do you know of its uses by others in bringing up poor lands in the way I propose, with potatoes?

The subsoil of the land is a tolerably heavy clay; and what grass is on the land is principally wire grass and redtop, with a little wild grass mixed through it; but very little grass of any kind, and nearly all in a thick stand of daisy. The land lies facing the east, with a nice slope, enough not to need ditching. H. Z. SHRIVER.

Terra Alta, W. Va., Jan. 15.

Perhaps the above letter is a little out of place under the head of high-pressure garden-

* This material seems as if it must answer a good purpose for lettuce-beds. It costs $2.25 for 100 square feet.—A. I. R.

ing; but my advice may, perhaps, be worth something nevertheless.

In the first place, I don't believe any paying crop can be secured the first year from such a farm—that is, any crop that will pay for the fertilizers the first year; and my experience agrees exactly with that of Mr. Terry and our Ohio Experiment Station. At the present price of average farm crops, and the present price of fertilizers, it does not seem to me that a *farmer* can afford to buy chemical fertilizers—at least that is my experience. Nevertheless, I would go to work and make that land good if it were mine. Save every bit of manure, according to Terry's teachings in the potato book, and Winter Care of Horses and Cattle. Buy stable manure if you can get it near by cheap in your neighborhood. After having done this, or if you can not do any thing better, raise crops to plow under just a fast as possible. In our locality we would turn under rye, then buckwheat, and finally clover, one crop after another, as many as possible in a season. In the fall you can doubtless work in crimson clover to advantage in your locality. If you are far enough south for cow-peas, get in a rotation of them. After you get a good crop of *clover* turned under you are all right for paying crops. Your coat of lime to commence with is probably all right. You might try some potatoes on some of your best land; but I don't think they would pay cost unless prices are away up above what they are at the present writing.

You say the land has slope enough so as not to need ditching. I should not agree with you here unless there is a gravelly subsoil that lets the water off quickly. I would commence tiling it right off this very month according to the directions in Chamberlain's book on underdraining. As you describe the land, I should think laying tiles was the very best thing to do, if you want to get your ten acres into shape so it will bring paying crops as speedily as possible. Our ground upon the hill by the windmill has given some of the very best crops I ever raised; but it is a heavy hard clay away down, and it slopes to the east so much that we do not dare have the furrows run up and down hill, on account of wash. After we got it underdrained (tiles laid 30 inches deep and 30 feet apart), we turned under a *poor* stand of clover, and got a good paying crop of potatoes the very first time.

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AND GET A CATALOGUE.

A list of the best seeds sold anywhere. Many choice novelties, and prices are right. Contains 100 pages, 400 illustrations, beautiful colored plates, honest descriptions. They cost us 17 cents each, but will be

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BEES FOR SALE.

Twenty-eight colonies Italians, 10 colonies hybrids, in 8-frame (Langstroth) hives, practically as good as new. Price—Italians, $2.50 per colony; hybrids, $2.00 per colony, on cars here.

Address **JAMES MACHIR, LINWOOD, KAN.**

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T. F. Bingham, Farwell, Mich.

STOP!

my friend, just one moment, will you?

Do you need any thing in my line?

Any BEES? QUEENS? HIVES? SECTIONS? FOUNDATION? SMOKERS? Any thing pertaining to bee culture? Then send for my catalog for 1896. It is a DAISY.

You may learn how to save freight on one order, to enable you to pay for your favorite bee-paper for years to come. Send NOW, or paste this in your hat, for it will not appear again.

E. T. Flanagan. Box 783, Belleville, Ill.

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We have at the Chicago branch among the stock purchased of Thos. G. Newman the following stock of sections, not of our manufacture, which we desire to close out to make room for our

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White Sections 4¼x4¼.		Cream Sections.	
40,000 1⅛,	1000 for $1.75	10,000 1⅛	1000 for $1.25
50,000 1⅞,	2000 for 3.00	20,000 1⅞	2000 for 2.00
80000 7-to-ft	5000 for 7.00	1,000 7-to-ft	5000 for 4.50

With all orders for less than 5000 add 25 cents for cartage. These sections are of Wisconsin manufacture, and when made were doubtless considered as good as the best; but as compared with our extra polished sections they are not up to the standard of to-day, but a decided bargain, and should be closed out quickly at these very low prices. If you prefer a sample before ordering we will mail one for 5 cts. to cover postage. Address

The A. I. Root Company,

56 Fifth Ave., Chicago, Ill.

or Medina, Ohio.

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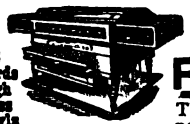

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FRUIT Trees and Small Fruits. We have a large and full assortment of all leading varieties of Peach, Apple, Pear, Plum, Cherry, etc. Largest stock of small fruits in the United States. Estimates given on large lots at reduced rates. Send for our illustrated catalogue and save money.

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Special Notices in the Line of Gardening, Etc.

By A. I. Root.

RURAL NEW-YORKER WINTER OATS.

At this date, Jan. 29, our winter oats are a perfect stand. The two freezes, from 5 to 10 degrees below zero, and the repeated hard freezing and thawing, without any snow on the ground, seem as yet not to have injured them a particle.

STOWELL'S EVERGREEN SWEET CORN.

We have a very choice lot of seed, grown in our own neighborhood, from the finest crop of Evergreen seed corn I ever saw. Per quart, 10 cts.; peck, 50 cts.; bushel, $1.75. If wanted by mail, add 15 cts. per quart for postage. At this exceedingly low price it should go off rapidly.

DWARF ESSEX RAPE.

This seems to be one of the new forage plants, and no mistake. Without advertising it we sold quite a quantity last season of the seed, and were finally unable to get it. We are now prepared with a stock of fresh seed, which we can furnish at the following low prices: Trial packet, 5 cts.; 1 lb., by mail, postpaid, 20 cts.; 10 lbs., by freight or express, 8 cts. per lb.; 100 lbs. for $7 00. The above prices are for immediate orders only.

SEED OF THE CHAPMAN HONEY-PLANT.

For some time we have been out of the seed, and were unable to find any. We have now, however, a pretty fair supply, and can mail it in 5-cent packets, or at 20 cts. per ounce. For a description of the plant, see our A B C book. When the globular blossoms are inclosed in a paper bag, the honey exuding from the flower will collect all over the large blossom, so that it will be a dauby and sticky mess, much as if it had been dipped in honey. The honey also is as thick and well ripened, almost, as that taken out of the sealed honey-comb. Where the blossoms are not covered as above, bees visit the plants so constantly that they take it off as fast as it exudes. Now, please do not imagine, dear friends, that I recommend this plant as profitable to raise for honey alone. The originator, friend Chapman, and the Michigan Agricultural College, have both tested it thoroughly. It is very pretty as a curiosity in a bee-keeper's garden, but it certainly will not pay to raise it for honey alone; neither will it pay to undertake to raise any plant unless it is some that will pay aside from the honey it yields.

PRICES ON FARM AND GARDEN PRODUCTS FOR 1896.

It always gives me pleasure to see good prices offered for any thing produced by tillers of the soil. I have not had very much encouragement in that line, however, for some little time back, unless it is to see the large prices that are offered for hay and all kinds of feed. There is a sad feature to this, however, for a good many farmers and stock-raisers have been obliged to *buy* at the high prices, instead of having stuff to *sell*.

Of late I am glad to see cabbage quoted at 2¼ cts. per lb., for good hard heads. Celery now brings 40 cts. per lb. in the cities, and there is no question that it is going to be a valuable greenhouse product. Ours is selling faster than we can get it blanched. Apples are also bringing very fair prices now. In fact, if I am not mistaken, a good many of the friends became discouraged, and even neglected to gather their apples, or sold them at a very low price. At the present time there are no good apples offered anywhere for much less than a dollar a bushel. In our town lettuce has sold quite well, and now the demand is beyond the supply. At the present time there is a good opening—at least it looks that way—for lettuce-growers, celery-growers, and for the first early cabbage; and I think that we may all go to work and fix our orchards in good shape for a crop of nice fruit this coming season.

Last, but not least, everybody everywhere wants to do his best toward getting, at the earliest possible moment, something in the shape of grass or forage crops to take the place of hay.

THE EARLIEST POTATO KNOWN.

Perhaps there has been enough about potatoes in GLEANINGS already; but nothing has been said in regard to the very earliest. Some time ago our experiment stations declared there was nothing ahead of the Early Ohio. In the catalog of seed potatoes from J. M. Smith's Sons, of Green Bay, Wis., we find they list the Ohio Junior as about ten days earlier than the Ohio; and then they add that the Bliss Triumph is ahead of the Ohio Junior, and they recommend it especially as "desirable for first early to put on the market green; color is a reddish pink." Other catalogs seem to agree in giving the Bliss triumph a place in the front rank of extra-early potatoes. Well, the above makes the following from our old friend A. L. Swinson of interest to us just now:

FRIEND ROOT:—I want to call your attention to a potato that we have here in North Carolina, and that I have grown for two seasons two crops of, and have known of for three seasons. It is a white extra early potato that I call White Bliss; that F. W. Wood & Sons, Richmond, Va., call "Wood's Earliest;" and say of it, "testing twenty kinds. They were all dug June 6, and Wood's Earliest weighed 28 per cent heavier yield, and by count averaged 33 per cent larger in size;" "found it earlier and more prolific; produces nearly all large potatoes."

Johnson & Stokes, Philadelphia, in their winter catalog, on page 18, give a cut of their field in Aroostook Co., Me., of this potato, where it yielded 550 bushels per acre, and they call it the "Pride of the South," and say, among other things, "It is not only the earliest, but produced more bushels to the acre than any other first early potato we have ever grown. It is a quick strong, and vigorous grower, and in cooking qualities very superior."

There is no potato known in North Carolina equal to this. Planted Mar. 1, 1894, I dug matured potatoes and shipped to New York May 23, and we had frost up to May 1st that year too.

Planted Aug. 8 to 20, 1895. That year my fall crop matured Nov. 1. It is easy to grow two crops a season with this potato. The most remarkable trait in this potato is the ease with which the spring-grown ones can be got to sprout, over all other varieties in fall, when planted for second crop.

Gold-boro, N. C., Dec. 9. A. L. SWINSON.

I have become so much interested in this "White Bliss Triumph," "Wood's Early," or "Pride of the South," that I have had friend S. pack for me a barrel of these, and had them shipped to me in the middle of the winter, and I have given them a place in our potato list. I hope the friends will please notice that these are not only extra early, but *second crop*.

POTATOES FOR 1896.

For description of each variety, see our special potato circular, sent on application. Season of maturing in order of table, the first named being the earliest.

NAME.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 20	$ 50	$ 50	$ 90	$1 50	$ 2 50	$ 6 00
" "Second crop."	15	35	20	35	60	1 00	2 50
Early Ohio	15	35	20	35	60	1 00	2 50
E Thoro'bred. Maule's *	1 00	3 00	3 00	5 00	7 50	12 50	25 00
Burpee's Extra Early	15	35	20	35	60	1 00	2 50
Freeman	15	35	20	35	60	1 00	2 50
Lee's Favorite	12			20	35	60	1 50
New Queen	15	35	20	35	60	1 00	2 50
Monroe Seedling	12			20	30	50	1 25
Beauty of Hebron	12			15	20	35	1 00
State of Maine	12			15	20	35	1 00
Sir William	15	35	20	35	60	1 00	2 50
Rural New Yorker	12			20	30	50	1 25
Carman No. 1	15	35	20	35	60	1 00	2 50
New Craig	20	50	50	90	1 50	2 50	6 00

Second size of Early Ohio, Freeman, Lee's Favorite, and New Craig will be ½ above prices. Above prices include packages for shipping. Potatoes will be shipped at any time, but we can not be responsible for loss by freezing until after April 1st. We can, however, specially prepare for *southern* shipments at an earlier date by special agreement.

* One pound of these potatoes (worth $1.50) will be given to any subscriber to GLEANINGS who gets one new subscriber; that is, who sends GLEANINGS one year into some family where it has not been taken heretofore.

"HOW TO GET WELL AND HOW TO KEEP WELL."

In our issue for Nov. 1 I gave this book a notice, and a large number have been sold. The best part of it is, the book has been loaned from one neighbor to another, and reports keep coming in of the missionary work it is doing. It is, most emphatically, doctoring without medicine. You get well by eating wholesome food, and after that you keep well by avoiding that which you know by experience does you harm. The book was written by Mrs. Elma Stewart, in such a bright and attractive way that

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every one who picks it up will be almost sure to read it through. We have quite a stock of them on hand, and will send it postpaid by mail for $1.25. If you have it put in with goods when you are making an order by freight or express, we will make it an even dollar. It is, in brief, a very plain, clear exposition of the Salisbury treatment, which has been discussed so much on our pages for the past few months.

Kind Words From Our Customers.

GLEANINGS has done me more good than any other paper I ever took, especially the Home readings, which are as good as going to meeting.
London, O., Dec. 27. S. G. KILGORE.

Ask A. I. how he would like to live on skimmed milk and sassafras tea. That is what I get.
The garden seeds I bought of you last year produced fine crops, even if it *was* dry.
Parkman, O. F. T. CLARK.

[My good friend, A. I. would have ridden ten miles on his wheel cheerfully for the sake of having all the skimmed milk he wanted, and sassafras tea, at the time the doctor was holding him down so closely to just lean meat. So you see he is not so very much better off than you are—at least, sometimes he is not.—A. I. R.]

THE CORNELL SMOKER.

Having been from home a great deal lately I have had to delay my report on the Cornell smoker much longer than I had intended. That a good smoker is one of the most important adjuncts to any apiary is settled beyond the need of discussion. The chief and most important features of a good smoker are, good size, to hold a fair supply of fuel; good draft, to produce a large volume of smoke with little attention from the apiarist; simplicity and strength of construction, so as to stand hard usage without getting out of repair; easy access to the fire-barrel in replenishing with fuel; lightness, that it may not be cumbersome to handle, and a shape that will keep it in position when set either perpendicularly or horizontally, and that allows of throwing the smoke in almost any desired direction without cramping the hand or wrist. All of these qualities the Cornell smoker possesses in a high degree, with the additional one that it can be made and sold at a low price. The one objectionable feature is the liability of the shields getting too hot to be touched by the hand. All smokers have this fault in a greater or less degree, however, and one soon learns to handle them all so as to avoid trouble from this cause. I find the draft sufficiently strong for any fuel; but where rotten wood or any open fuel is used it is as strong as in any smoker I ever saw. The Cornell is bound to prove a very popular smoker with those bee-keepers who run their apiaries on economical lines, and with profit as their chief aim.
Hawks Park, Fla., Dec. 21. W. S. HART.

THE A B C, AND THE CRANE SMOKER WITH THE HINGED TOP.

Friend Root:—The new "A B C" just received, for which I sincerely thank you. I have not had time to more than glance at it, but I see that it is much more complete in many respects than my old one, and that is saying a good deal.

I thoroughly enjoy that hinged nozzle of the Crane smoker. I do not by any means make constant use of a smoker when at work among the bees, but I want it all ready when I need it; at the same time, I do not want it burning too fast, and getting the nozzle blistering hot, and making a big deposit of tar to stick up every thing; so, when not in use I remove the nozzle. This, of course, keeps it cool and prevents the tar deposit; but if there is much wind blowing, the fuel burns up too fast. To prevent this I have for some years past been using a damper. This is just the bottom of a tin can with a hole cut in the middle of it; the little flange around the outside serves to keep it in place. Of course, the change from damper to nozzle takes an appreciable amount of time, but the comfort of the arrangement has paid a hundred-fold for the little time taken. Now, just here is where I like the hinge. The damper removed, a touch closes the nozzle (no need to shut it very close), and it is as quickly opened again. C. H. LONGSTREET.
Mount Dora, Fla., July 12, 1895.

A KIND WORD FROM CALIFORNIA.

Friend Root (at least I think you are my friend):—Ten years ago I bought five hives of bees; and with seven colonies that were given to me I commenced the bee-business. I had never seen a bee-journal, and but one bee-book, which was written back in the forties. My hives were all box-hives. I increased that year to 17 stands. I bored a hole in the top of each hive and put a box on each. The result was about 200 lbs. of honey.

Well, I thought if that was bee-keeping I did not want any more of it, so I said good by to the bees, and left them to their fate. The weeds grew up around the hives, and there they remained for five years. At the end of that time an old bee-keeper became one of my neighbors. He saw my bees in the weeds, and wanted them; but my mind began to turn toward my neglected little family, for about this time J. C. McCubbin, the president of our bee-association, loaned me a boxful of back numbers of GLEANINGS, and then I began to read, day and night. Wife said I had "bees on the brain," and I guess she was about right. I have heard of the bee-fever, which I think I must have caught. The fever is still on.

I am now taking GLEANINGS. Give us more of your Home talks, Notes of Travel, and all the rest of those good things in the back part of the journal, for your paper is my most welcome visitor.

I have, in the last three years, increased my apiary from 17 colonies to 66. My crop of honey for this year is 2000 lbs. comb, 1600 extracted—not so bad for an off year. With 40 strong colonies and 19 very weak ones I increased to 80; lost 14 by starvation; came out at the end of the season with 66 colonies and of good courage, and will go in for twice that number next year.

Well, friend Root, what is to prevent A. I. from taking in California on his wheel? We will treat him better than we did Rambler. When Rambler was here he camped within a stone's throw of my house, and never said a word. When I heard who it was camping so near, and making "night hideous," I just felt like going out behind the barn and kicking myself. THOS. M. SKELTON.
Selma, Cal., Dec. 16.

A KIND WORD FROM TOUNGOO.

My Dear Bro. Root:—It is about time I wrote to thank you for GLEANINGS, which gladdens my lonely missionary life; for you must know that I am alone in my work now, my family being in America. I returned to this country from America two years ago last July. I went home in 1890, broken up with chronic diarrhea, and it has clung to me and nearly killed me several times during these years till since April, when I began slowly to improve. This great mission, of which I have written you often, still continues to grow. We have now over 80 churches, aggregating over 3000 members, with schools, and all mission appliances *ad lib*. But the apple of our eye is a force of about 30 foreign missionaries, so far as these native Christians are concerned, sent out among the wild tribes for the purposes of the kingdom. We fully expect to organize many new churches in the near future. I send you a pamphlet just out of our press (printed by our Karen schoolboys), which will show you what we are doing in that line. We have just held our ministers' semi-annual conference, when 143 baptisms were reported for the last 8 months.

It is hard for one at my age to cut loose from all family ties so long, and know that the little folks are all growing up away from the father; but it is the gospel of Christ that *must* be preached. I have held on now nearly 30 years, and a few years more will fill up the measure of service, and then "like Jesus, for we shall see him as he is."

I enjoy GLEANINGS, and especially the Home Papers, very much; and not a little good do I get to pass on to these Karens. So, Bro. Root, you are preaching to these Karens in Toungoo. We'll rejoice together in the harvest.

I still am greatly interested in bees; but while I was ill at home the white ants got at my hives and literally ate them all up but one cover, which I now use as a board on which to develop my photos.

Give my kindest regards to Ernest and wife, whose hospitality I shared when I called upon you; also to Mrs. Root, and a thousand thanks and good wishes to yourself. Long may GLEANINGS wave.
Toungoo, Burma, Nov. 8. A. BUNKER.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. ROOT CO.
MEDINA · OHIO ·

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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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ILLUSTRATED SEMI-MONTHLY
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STRAY STRAWS FROM DR. C. C. MILLER.

GREAT BRITAIN, says *B. B. J.*, imported in 1895 honey to the value of $200,000.

CENTRALBLATT says foul-brood spores can give the disease after being kept seven years.

IN FRANCE there is complaint that honey granulates too slowly this year, making consumers suspect its genuineness.

DID YOU EVER know so much inquiry about sweet clover as at the present time? [No; and it's a good omen for bee-keepers.—ED.]

GRAVENHORST says he has often had laying workers in the same colony with virgin queens, the laying workers disappearing when the queens commenced business.

A LEAFLET for bee-keepers to scatter among consumers is now hatching in Hutchinson's brain. Good thing. [Yes; and Hutchinson is a good man to get it up.—ED.]

HOT WATER is objected to as a drink by some people who forget they are themselves using it three times a day. Hot water is none the less hot water because it is flavored with tea or coffee.

I INDORSE the editor's good opinion of Horlick's malted milk. A cup of it with hot water makes a drink with the refreshing qualities of beef tea, with the added advantage of an abiding strength that beef tea doesn't possess.

GARDENING, literature, law, medicine, religion, poultry, have formed departments of bee-journals, and now the *Nebraska Bee-keeper* has started a department on irrigation. May be that will help the honey crop in dry seasons.

DE LAYENS reports in *L'Apiculteur* a thorough series of experiments which seems to show that bees ventilate, not to cool the hive, but to evaporate the honey. The number of fanners early in the morning was in proportion to the flow of honey.

MÆUSETYPHUSBACILLUS is what they're now proposing to kill mice with in Germany. Five cents sent to the station at Leitmeritz brings a package with instruction for use. It's harmless to other animals. Its very name ought to frighten the mice away.

UNITE a swarm having a virgin queen with a colony having a fecundated queen, whether she lays or not, and Gravenhorst says the bees with the virgin queen will be killed. But remove the virgin queen and sprinkle the bees with salt water, flour, etc., and all will be well.

MEAT-CUTTERS may be a good thing for people who have to gum it; but I'll give a meat-cutter odds any day, and do a better job on a beefsteak with my teeth. [If you have good teeth, that is all right; but many haven't, and hence the chopper is almost a necessity.—ED.]

M. LEGROS, by his improved glossometer, finds the length of the average worker's tongue to be 6.5 millimeters (.256 of an inch); and by selection he has obtained bees whose tongues measure 7.5 millimeters—a gain of about $\frac{1}{25}$ of an inch.—*L'Apiculteur.* I wish I had a glossometer.

R. L. TAYLOR, in *Review*, while he doesn't hold out very great encouragement for feeding back, thinks it may succeed with right conditions, such as black or hybrid bees, a prolific queen, time immediately at close of white-honey harvest, small brood-chamber, or one section of Heddon hive, and sections well toward completion.

WHEN IT COMES to adulteration of wax, America must take a back seat for Germany. Much has been said about adulteration of foundation; and now comes an enterprising firm at Cologne, boldly advertising Gewerbe-wachs (trade-wax) of three grades at 18, 25, and 31 cents a pound. The best is ¾ beeswax; the cheapest is pure Gewerbe-wachs.

RENEWAL OF QUEENS. Herr Strutz says in *Centralblatt* that he thinks strong colonies usually renew their queens annually at the close of harvest, and that prime swarms do the same. That may be partially true; for, naturally, a queen that had laid heavily throughout the season would be more likely to be superseded than one whose laying room had been limited.

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A SEEDSMAN in Kent, England, as reported in *B. B. J.*, banished bees from his neighborhood because of crossing his seeds; but when he found the seeds were insufficiently fertilized he was glad to get the bees back. [It is the same old story over again, and yet some won't be convinced. Keep such stories, as long as they are true, afloat.—ED.]

"WE STRONGLY ADVISE the use of combs for storing purposes which have never been contaminated by brood-rearing. That honey stored in old brood-combs will be deteriorated in quality, we have no doubt whatever."—*British Bee Journal.* [This point has been urged in this country and others. Probably there is some truth in it.—ED.]

A GERMAN bee-keepers' society has adopted the rule that a fine of 12½ cents must be paid by each member who fails to bring in a question for discussion. Since the adoption of the rule there has been no lack of material for lively discussion. [There was no lack of material at the last Chicago convention, which was given over exclusively to the question-box, and yet no fine was imposed.—ED.]

SIXTEEN DAYS is the orthodox age for bees to begin field work; but H. R. Boardman says (p. 53) ten to fourteen. Unless he can verify that statement he should be arraigned for heresy. [Outside of the knowledge we get from the bee-books, I wonder how many of us actually know from experience and observation. I suspect Mr. Boardman went to the book of Nature. It would be just like him.—ED.]

M. LEGROS, according to a report in *L'Apiculteur*, has increased the size of his bees, consequently the length of their tongues, by using worker-cells of increased size. He makes selections by means of his improved glossometer. [I don't believe increasing size of cells would increase the size of bees. It has been tried, and failed, I think. But I do believe something can be done by selection.—ED.]

"IN ALL THE OLDER and well-settled States, the woodman's ax and our modern farm machinery have so reduced the pasturage as to render specialized bee culture very pecarious." —*E. Secor, in Review.* Time that chestnut was "roasted," Eugene. The failure of honey crops came long after the ax, *et al.*, had done their work. And by that same token crops may again be as they were 20 years ago. [Yes; and on the other hand, Secor's statement is a good deal true, in many sections at least.—ED.]

I protest against that sort of tyranny that says I must use spacers I don't like at all for comb honey just because they suit extractors. And I tried to say so in last Straws; but the fiendish types reversed my meaning after this fashion: "I protest against that sort of tyranny that says I must use spacers. I don't like them at all for comb honey," etc. Think of making me say that, after I have been pleading with tears for good spacers! [The statement as it came from your typewriter was all right. I read your copy as you intended your meaning, and made my answer accordingly; but our proof-reader, I see, put the word "them" in the sentence, and a full stop after "spacers," thus changing your meaning. If I read the proof afterward I did not notice the change. The omission of the relative "that" or "which," after "spacers," he says, besides the wide separation between "spacers" and the next word, ditched his train (of thought) and gave him a misapprehension of what you meant. We'll be more careful after this.—ED.]

THE *Review* is the latest to succumb to the pressure of the importance of some other topic than bees, and has nearly five pages on hygiene, written by Allen Pringle. As might be expected, some good things in it; among other things a strong plea for the use of flour that hasn't all its best parts sifted out. But it's so hard to get whole-wheat flour, people will continue foolishly to eat the pale remains. [The article is good, and I indorse it *all through*, except where the use of meat should be avoided, or at least eaten sparingly. I grant that meat, when taken with a great lot of other food, often does more harm than good by overloading, as it is a strong food; but when taken by the Salisbury plan, ⅝ lean meat (beef and mutton) and ⅛ other food, it does great good. I *know* this by actual test upon myself, upon my boy, and dozens of other cases under my observation. When taken in this proportion the meat is very easily digested. The system, in order to become accumstomed to it, must commence with *small* rations at first —three or four ounces.—ED.]

ON THE WAR-PATH.

In a very kind notice of Skylark (*Review*, p. 248) friend Hasty criticises the first issue of these papers. He says in regard to the adulteration of honey:

The only sample of California honey I ever sent for was dark in color, and too queer in flavor and other characteristics to sell at all. Perhaps mixing in a fine quality of glucose would make it sell. At any rate, if the adulteration is actually done it is of small moment to "we-uns" *where* it is done. Once again, prove to the railway magnates that your freight *can not* stand the charge, and a special reduction is not unthinkable. How about glucose at 1½ cents with freight reduced to half a cent, and a salable product made of a previously unsalable one? When plausible argument collides well-authenticated fact, the argument has to give way. It is quite imaginable that friend Dayton had such

an inside view of things as enabled him to give us the authentic fact when he said that half California's product left the State in an adulterated condition.

Is this the only sample of California honey he ever saw—a sample from some one who had no better? Does he judge all our honey by a single bottle, or a 60-pound can? We have a honey-producing country larger than any one of half the States in the Union. We have all climates the world can produce, from the arctic winter of the mountains to the seductive climate of Italy or the balmy fragrance of "Ceylon's isle." Climate! yes, we can furnish any climate wanted. All we need do is to reach up to a pigeonhole above the desk, and haul out any climate we please. We have no cyclones to scatter our apiaries to the four winds of heaven; no lightning to speak of; no thunder, except that of Skylark as it rolls across the continent.

Is such a land, teeming with the greatest assortment of honey-plants the world can produce, to be judged and condemned by a single sample of dark honey? Suppose I were to obtain a sample of the "bug-juice" you sometimes get at Richards, O., and hold it up to the gazing world as a sample of Ohio honey, and cry aloud that it all needed a "good article of glucose to make it salable;" could you think I should be doing justice to Ohio? Bro. Hasty, you have been *too hasty* in your remarks. Did you ever see comb honey as white as the driven snow? That was black-sage honey, and was produced on California soil. Did you ever see extracted as clear and beautiful as any water from a living spring? That was also black-sage honey, and was the product of California soil. We stand on the top of our woodpile and crow over our honey. We challenge mankind to produce such a quantity and such a quality on any territory of the same size, the world over. Bro. Hasty, I am mad at you—real mad. You *will* try to adulterate that honey, all I can do. I have got Bro. Dayton down, and you try to pull me off, contrary to the Queensbury rules. But you just hold him for me till I knock the stilts from under your own figures. You people buy glucose for 1½ cents, then figure on bulldozing the railroad to carry it over the continent for ½ cent—a far lower rate than they would carry cobble stones. Hasty, you ought to be ashamed of yourself, to try to wreck a railroad in this reckless manner. Very well, we will take your own figures.

Glucose, 1½ cents; freight, ½ cent; drayage at both ends of the line, handling, and mixing, ½ cent more; cases and cans, ¾ of a cent; in all, 3¼ cents per pound for glucose to mix with honey at 3 cents. What a splendid speculation! At the time friend Dayton's article appeared, hundreds of tons of honey were actually being sold—from Los Angeles to Monterey—for 3 cts. per pound, and it is no higher yet.

Now, friend Hasty, if *you* have any "inside views" or "authentic facts" that would enable you to take honey at 3 cents, and mix it with glucose at 3¼, and make money on it—why, just prance them out.

I don't see why the editor of the *American Bee Journal* does not send me such questions to answer as the following, which appears in the question-box for 1896:

Query 1. Please tell about how often you "go into" or take frames out of each hive in the course of the year.—KY.

Well, it depends on how many hives you have. I don't want to be too hard on you. If you have only one hive, I would not "go into" it more than about fifty times a day. If you have ten hives, don't "go into" them more than ten times a day. But if you have 100 hives, I would not "go into" them more than three times a day—just to see how the queens are laying, and to see that they do not lay their eggs upside down. If they do, you must take a pointed quill, made something like a pen, and turn them all over. There is no use in having bees hatched out tail end foremost. Such bees always go the wrong way for honey. Now, mind your eye, don't you "go into" them any oftener than I have specified. A colony of bees is not a "monkey show," where you can "go in free" as often as you please.

There are so few things in this world that I don't know all about, that, when I *do* meet with something that I do not fully understand, I am utterly confounded and surprised that I should have missed it. The following questions are asked Dr. Miller, in *American Bee Journal*, page 745:

1. How much sulphuric acid should I apply to a gallon crock full of old combs to take the wax out of the cocoons?
2. Is it injurious to a tin vessel?
3. How is it applied to old combs? L. H. L.

Answers.—1. I'm not familiar with the matter from experience, but I think about a small tablespoonful to a gallon of water.
2. Yes.
3. I think the wax is stirred in the water, and allowed plenty of time to do its work, then the wax is melted and separated as usual.

From answer 3 it would appear that Doctor M. means to stir the combs in cold water with the acid. Now, that is just what stumps me. I never tried a scheme of that kind, and do not believe that the acid could do any work, so far as purifying the wax is concerned, no odds how long the combs were left in the solution. Refiners use sulphuric acid to cut the dirt and color out of crude oil, and then cut the oil out with caustic soda. But oil is a liquid; and if you want acid to cut the dirt out of wax you must turn that into a liquid. This can be done only by heat. The doctor conveys the idea that the work of the acid is done while the old combs are lying in the solution of cold water and acid. This is the one thing, the only thing, that I didn't know. This is what surprised and astonished me—astounded me so much that I

don't believe it yet, and I will tell you why. You notice the answer concludes, "then the wax is melted and separated as usual." Now, doctor, *there* is where the acid does its work—on the liquid wax; for when would it drive the dirt to the bottom, out of old comb? This process will cleanse the wax if it is boiled in the same water in which it is soaked, because the acid is in it. But it is bad engineering. It will boil over very easily.

Now, Ky, sit down at the feet of experience, and learn wisdom. Here are three things you should not do: 1. Never go near a kitchen stove to melt wax. It is dangerous. 2. Don't melt it in any place where any thing can catch fire, even if the whole country burns down. 3. Never put any acid in until your wax is completely melted—every bit of it, out of your old comb! When it is done boiling, pour your acid in slowly—very slowly—stirring your wax all the time until it is milky—quite milky. When you have thoroughly stirred and mixed it, let it settle. The acid drives all the dirt to the bottom, and in a little while you can dip it out carefully—not going to the bottom of the wax—and run it into merchantable cakes.

□I had a scrimmage one time with wax, that will show what sulphuric acid can do. I had a large boiler of wax on the fire (out of doors, of course); and just after putting fresh fuel on I was called to the house. □Some lady visitors had arrived, and I, being a great favorite of all my lady acquaintances, forgot all about the wax. After a while I heard the cry of "fire! fire! fire!" I dashed a bucket of water into the boiling wax and on the fire, and several on the surrounding country. It had run in all directions, but had not the strength of mind to get to the top of a mountain that rises behind the apiary. The next morning I gathered up this wax that was burnt as black as night, mixed with sticks, stones, dirt, ashes, shavings, sawdust, and other tinware, and put it in a sack, and treated it just as I have described. The acid sent every bit of dirt and rubbish to the bottom, even the stones. The wax was a clear beautiful yellow, as good an article as a man would wish to see.

A PIECE OF CRUEL SURGERY.

The editor of this paper has cut me in two—yes, he has—without pity and without remorse, without even sending me an invitation to attend the ceremony. If the most famous bee-keeper in the world can be sawn asunder without notice, in this ruthless manner, what will become of you fellows in the East who don't know any thing at all? I would ask, also, what rights will a bee-keeper have if he is cut in two every time he is not looking right at the editor?

That beautiful picture of Skylark—such a perfect likeness—a picture over which our family rejoiced and laughed for joy, is no more—at least, half of it is no more, for ever. Now, if editors are permitted to go on in this barbarous manner, what shall we come to at last? But I'll settle with *you*, Mr. Editor; wait until I catch you alone.

I read the description of the "dry-weather vine" with keen interest. If this vine turns out as friend Wallenmeyer says, "the hotter and dryer the weather, the more abundant the bloom and yield of nectar," what a boon it will be to bee-keepers in a dry season! But there is one setback to it—it doesn't like land soaked in water for a long time, as was the case in that wet season, with Mr. Wallenmeyer. Now, that will just suit this coast, because we don't care how much it fails in a wet year, for then the honey will flow down the mountains, from our native flowers. As a honey-producing country, this coast needs but one thing more—only one honey-plant more—a plant that will yield a crop of honey in a dry year. With such a plant added to our flora we could beat the world producing honey. We can do it anyhow.

CALIFORNIA ECHOES.

By Rambler.

"He is poor whose expenses exceed his income."

Cost of extracted honey, 4½ cts.; selling price, 3 cts. So the above proverb fits our case. Bee-keepers in California feel very poor.

I make my zwieback of moldy bread, and zwie it out back of the house to the cats. Come over and eat some of my flapjacks, and you will zwieback nevermore.

The hearts of all California bee-men are made to beat happily by the copious rains during the last half of January. Their continuance until May means another good honey yield.

An enterprising bee-keeper of Latona, Wash., has adopted the sensible plan of leaving that wet country during the rainy season and sojourning in the salubrious climate of Southern California. We predict that Mr. Cole and his partner Lomes will eventually have apiaries in this more southern country.

A Straw accuses me of neglect toward Mme. Modjeska, the once famous actress. Modjeska lives in Orange Co., and that is Dr. Gallup's plantation. Dr. G. is fully able to take care of the madam's bee-keeping interests. If I should go over into Orange Co., my experience with Eugenias would lead me to avoid the "famous actress."

I don't like that word "bar," which some one wishes to use instead of perforated metal. It smacks too much of "Will you take suthin?" You know it is always taken over a bar. Then it is suggestive of the bars of a cow-pasture. Then there are bars at the mouth of rivers. A

steamer rears, and then plunges to get over them. Then, above all, it is a Hinglish term. Away with it! Send it to Venezuela.

If over my own signature I should say that the bee-keepers of California are the most progressive in the U. S., some one would say that I was just booming California. But see here: Manager Newman says that nearly *one quarter* of the members of the Union hail from this State.

There are over a thousand bee-keepers in Southern and Central California. From a few figures sent me by Mr. C. H. Clayton, of Lang, I deduce the following figures: Around the town of Acton and Antelope Valley the average number of colonies to each bee-keeper is 90; taking those figures for a basis, 1000 bee-keepers own 90.000 colonies. Average yield per colony, during the past season, one case, or 120 lbs., or 90,000 cases, or 5249 tons, or 437 carloads. Value, at 4 cts. per lb., $419,920.

Then just think of the unblushing statement, that half the California honey was adulterated by one firm in Los Angeles. Observe how busy the railroads must have been hauling 437 carloads of stuff from the East to match our pure honey. Then further observe how Hasty, in the December *Review*, lends a helping hand to the "unblushing statement."

The enterprising bee-keepers of Ventura County are disposed to score Prof. Cook, the Rambler, and any other man, who has written any thing about three-cent honey. It is a very peculiar state of things, that Ventura bee-keepers have been able to dispose of their honey at not less than 4½, and even 5 cts., while we in the more southern counties have not been able to sell for more than 4½, and later the offerings are 3 cts., and good white honey has been sold for that; therefore I do not see the necessity of scoring, for the truth is mighty and must prevail. The A. I. Root Co. also get a little of the scoring for trying to buy honey at 3 cts. Those Ventura fellows are a queer lot, any way.

[We bought one car at 5 cts., and that was all we got. When I told our buyer, Mr. Calvert, that, on the authority of you and Prof. Cook, white honey was selling for 3 cts., he said he did not believe it, and that he would write and find out. Well, he didn't get any such offerings, and now the A. I. Root Co. are in for a scoring for their inquisitiveness.—ED.]

A NEW USE FOR HONEY.

WE copy the following from the *American Agriculturist:*

Considerable quantities of white currants preserved in extracted honey have been imported lately from France, and are selling freely, at long prices, to dealers in fancy groceries. A glass containing hardly a gill retails at 25 cts. Evidently only the best selected white currants are used, slightly cooked—just enough to take off the raw taste but not injure the fine flavor—and preserved in nice extracted honey. This confection is not too sweet, but has the most captivating flavor, and is destined to wide popularity. Here's a point for some one to make a profitable little business putting up such preserves for market.

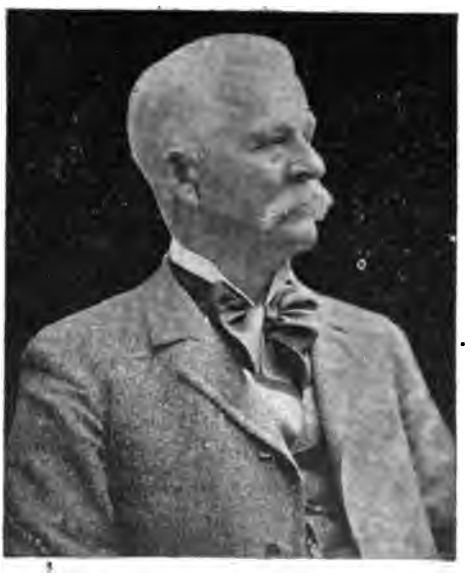
THE BEE-SUPPLY BUSINESS.

A FEW FACTS REGARDING THE GROWTH OF THE VARIOUS BEE-SUPPLY MANUFACTURING ESTABLISHMENTS OF THE UNITED STATES.

By the Editor.

In our issue for Jan. 15 I gave you a bird's-eye view of our establishment, and some facts in regard to its recent growth and improvements. I have for some time cherished the idea of allowing our competitors in business or rival manufacturers to give us a brief sketch of themselves. In the first place, I asked for biographical sketches of each of the *members* of the different firms; but some modestly begged to be excused, on the ground that they rather shrank from such prominence. I gave the matter up for a time, but finally renewed, asking each concern if I might have a biographical sketch of the *firm as a whole*, with photos of the members, and in this I was successful.

In the bee-keeping world, probably no names are more familiar than those who manufacture bee-keepers' supplies. I am sure it will be a genuine pleasure for you all to see the faces of the men and those of their co-laborers who have been making hives and sections. Little glimpses like these make us nearer akin, and I believe they help to make us mutually better acquainted.



G. B. LEWIS.

It is said that men of a trade can never agree. It is not true of the manufacturers of bee-supplies. The pleasantest of relations exist between all four of us. We sometimes run into "red-hot competition," but, so far as I know,

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that does not interfere seriously with our good will.

The first firm whom I will introduce will be the G. B. Lewis Co. Their own statement, as is also true of the others, as to the organization and growth of their business, appears with the portraits.

G. B. LEWIS CO.

Mr. Root:—Our business was established in 1874 by G. B. Lewis, and was conducted by him until 1878, when Chas. E. Parks, his son-in-law, came in as a partner. The firm name was changed to Lewis & Parks, and continued so until 1880, when Mr. Parks retired and went into the lumbering business in Northern Wisconsin. From 1880 to 1884 the business was conducted by Mr. Lewis. In 1884 Mr. Parks sold his lumbering interest and again formed a partnership with Mr. Lewis, under the firm name of G. B. Lewis & Co., under which the business was conducted until the spring of 1890, when the plant was destroyed by fire. The original factory was very small, and was run by water power. In 1886 it was enlarged, and the water power improved, and the plant then consisted of a factory 50x86, 2 stories;

C. E. PARKS.

warehouse 40x80, 2 stories, and lumber-yard. In 1890 the present plant was put up. It consists of factory 60x120, three stories and basement; engine and boiler-house, and office. In addition to former warehouse another was put up, 100x30, one story. Two additional lumber-yards were purchased, making three yards, besides which another yard was leased from one of the railroad companies.

In addition to the excellent water power, a 125-horse-power engine was added. The factory is heated with steam, lighted with electricity, and all sawdust and shavings are removed by means of exhaust pipes connected with every machine

After the completion of the plant in 1890 the firm of G. B. Lewis & Co. was merged into a stock company, under the name of The G. B. Lewis Co. This company has a paid-up capital stock of $100,000. Mr. G. B Lewis was president. From its organization until the fall of 1894 the direct management was done by Mr. C. E. Parks; but owing to ill health he was then obliged to retire. His death in the summer of 1895 left the management in the hands of Mr. G. B. Lewis, who is now president and general manager. Yours truly,

Watertown, Wis. G. B. LEWIS CO.

THE W. T. FALCONER CO.

Mr. Root:—The W. T. Falconer Manfg. Co. was started by Merriam & Falconer in 1880, they being then engaged in the manufacture of sash, doors,

W. T. FALCONER.

and blinds. But a small business was done by this firm in the way of bee-keepers' supplies for two or three years; but the possibilities of the business were manifest to W. T. Falconer, of the firm; and acting upon this he purchased his partner's interest in the supply business and sold out his interest in

D. E. MERRILL.

the sash, door, and blind business January 1, 1883. The volume of business increased in 1883 over four times that of 1882, and for some years either trebled

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or doubled. In the fall of 1888 D. E. Merrill was taken in as partner, and the firm name changed to the W. T. Falconer Manfg. Co. (not incorporated), under which name business has been conducted until the present time.

The publication of the *American Bee-Keeper* was commenced in January, 1890.

THE W. T. FALCONER MFG. CO.

Jamestown, N. Y., Jan. 16.

LEAHY MFG. CO.

Mr. Root:—The nucleus of the firm known as the Leahy Mfg Co., doing business at Higginsville, Mo., was started in the spring of 1884 under the firm

R. B. LEAHY.

name of Kennedy & Leahy. Leahy bought out Kennedy's interest in the fall of 1887, and ran the business under his own name for one year. In 1888 Leahy took in a partner in the person of E. B. Gladish, and the business was conducted for two

J. E. GLADISH.

years under the style of R. B. Leahy & Co. In 1890, more partners were taken in, and the business was incorporated as the Leahy Mfg. Co., with a capital stock of $12,500. In 1892 the capital stock was increased to $24,000. LEAHY MFG. CO.

Higginsville, Mo., Jan. 9.

[Besides ourselves, I believe the three firms here represented are the only ones in the country who manufacture a full line of bee-hive material, so far as wood work is concerned. There are others who make some specialties, as, for instance, sections, foundation, or extractors; and later on I hope we may show you the representatives of these. But there is a host of dealers who buy from ourselves and the concerns here shown. Many of these dealers were, in the past, manufacturers; but gradually the business began to centralize into the hands of a few. Some of the smaller ones sold out to the "big guns," and in turn became their representatives or dealers.

Not more than ten years ago, if I had attempted to introduce in this way the members of the different firms which manufacture supplies—that is, a general line of them—I should have had a job on my hands indeed. We then received catalogs from something like 25 or 30 different *manufacturers;* and now this number is reduced down to a very few, and the catalogs that we now receive are almost exclusively from *dealers.*—ED.

EXPERIENCE IN PEDDLING HONEY.

A READABLE AND INTERESTING ARTICLE.

By Geo. L. Vinal.

Having a few colonies of bees I started to peddle my extracted honey, putting it into quart and pint fruit-jars, labeled.

Meandering over the country roads, having a day-dream how I could increase the number of my colonies to one hundred and the profits in proportion, I arrive at the first house. Taking a quart jar of honey in my hand, and a pint in my pocket (I mean a pint jar of honey), and rapping at the door, which is opened by the good dame—

"Good-morning, madam. Could I sell you a jar of very nice honey this morning?"

"No: it is strained honey, and I do not want it. I will have a pound of comb if you have it, for I know that is nice."

"No, madam, this is not strained honey. It is extracted, it is—"

"Well, now, you need not talk. That kind of honey is always strong, and I don't want it."

"Madam will you please try this? Just give me a spoon, please." (She tastes.)

"Well, now, that is real good. Is it some you made yourself?"

"No, ma'am, it is some my bees made, and I extracted it from the combs. You please read what that says, and you will see the difference."

"Oh, yes! I see. Well, if it is pure I will take it."

She got the honey and I got the money.

Next house. "Good-morning, madam. Could I sell you a jar of very fine honey this morning?"

"No, you can't honey me with any of that kind of stuff, for I know what good honey is the

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minute I see it, and you can't sell me any of your 'gleu-cose'—not if I know it."

"No, madam. I do not think I can sell a woman who has lived for thirty-five years or thereabout" (she was fifty if she was a day), "for she has lived long enough not to be fooled with glucose; but, my dear madam, will you please try this, and see if you ever tasted glucose like this? Your little boy there would like a taste, I know, madam. Is that your oldest child, madam?"

"Well, now, really, don't I look old enough to be his grandmother, let alone being his mother?" (The cover is off and they are both tasting.)

"Well, really, madam, I should hardly think on his grandmother."

"Do you really mean it? This is different strained honey than I ever tasted before; and if you say it is pure I will take it."

I said it was pure, and left it.

"Good-day, sir. Would you like a little honey this morning?"

"Well, I don't know as I do. Oh! you are the one who lives over on the Stone farm, ain't you?"

"Yes, there is where I stop."

"Yes, there is where I saw you and your bees as I drove by there. How much a jar?"

"Fifty cents."

Leave four jars, and here is your sugar."

The next is a large house and barn. I rap. The door is opened. A head and face appears with a "don't want any thing."

"Please excuse me, madam; but would you be kind enough to give me a drink of water?" I get the drink, with a "thank you, madam; this is quite a fine day for this time of the year."

"Oh, yes! it is quite nice weather, but too warm to be healthy. Don't you think so?"

"Well, for my part I rather like this weather. I see you have a Southern mockingbird there. What do you feed it on? it doesn't look well. I had one I fed on sunflower seeds and chopped meat, and he did quite well after that."

"Oh! I am glad to know it, for my bird has not done well at all. Have you honey there? I thought when you rapped you were a tin-peddler."

"Yes, ma'am, I have a very fine article of extracted honey—fifty cents a jar. Would you like one?"

"Yes, if it is good honey I will take one." (She got it.)

"Madam, good-morning. Would you like a jar of honey to-day?"

"No, I don't want any made honey. I have made artificial honey myself 'fore now, and I know just how it's made, as I made it over twenty years ago."

"Now, my dear madam, you must admit that the world moves, and that in the last twenty years there have been some improvements, even in the production of honey; and now, my dear madam, will you please sample this and see if it is as good as you used to make, as I should like to get an expert's opinion on it." (She tastes and smacks and tastes.)

"Well, now, really I must say that is a prime good honey, and I do really wish you would give me the recipe for making it. If you will I will take two jars."

She gets the jars, I get the dollar, and tell her to get a hive of bees.

"I have some fine honey here, madam, that I raised myself. Would you like a jar this morning?"

"No, sir. I do not like it. I can not eat it. It chokes me, and I do not want it." (Bang goes the door.)

Going down the road a little piece I meet a man and pass the time of day—talk about the weather and crops; praise his cur dog, ask about his farm, find he lives where the door was banged in my face; show him the honey, get him to taste it; talk about bees, persuade him he ought to eat honey for throat trouble; convince him it is good for consumptives, having found out his daughter was sick with it; sold him four jars, and since that time he has driven over to my place and bought six more.

"Madam, would you like a jar of honey to-day?"

"Is it pure—real pure bees' honey, or is it some you made yourself?"

"Yes, ma'am, it is real pure bees' honey."

"Well, if it is I will take a jar."

That is about the way I found it. When I could convince the people that it was a good article, I could sell, as a rule; but there were many, many places I could not sell at all. But wherever I have sold I can sell again. I think that, by securing the confidence of the people, we all could dispose of our crop near home.

Charlton City, Mass., Dec. 24.

[I wish we might have more of these experiences in selling honey. Bee-keepers should do less at flooding the market at the great centers where competition is strong, and more at developing a *home* market. Once peddling honey gives the bee-keeper a reputation, and after that the trade will, to a great extent, come to him, instead of his having to go to it. I fancy friend Vinal gets or will get orders right along from these customers he has been telling us about—even from the "door-slamming ones."—ED.]

SELLING ON COMMISSION.

SOME OF THE DANGERS POINTED OUT.

By J. S. Hartzell.

For some time past, articles have appeared in the bee-journals relative to the disposal of honey; and many theories have been advanced as to how to obtain prices to justify the producer. Many complaints have appeared against commission men, and well there might be, has

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been my experience in more than one instance. Let me here recite one.

A few years ago I forwarded from Confluence, Pa., a lot of chestnuts to a commission house in Chicago, that cost me over *sixty dollars* (prices quoted by them being the inducement). After waiting quite a while (60 days or more) I wrote the firm regarding the matter. In reply they requested me to forward a certain amount of money, claiming the nuts did not sell for enough to pay freight charges. I could name other transactions of the same nature. With all due respect for commission men, and their business if properly and honestly conducted, I would suggest that, unless you are personally acquainted with the individual or firm, you think twice before shipping to them. Once goods are consigned to them you are entirely at their mercy, both as to prices goods are sold for, and returns made for the same to shipper, unless you act as judge and name price goods are to be sold at; and this I have done, and have had prompt sales made, and possibly to my detriment.

Do not understand, friends, that I condemn all as rogues, as some commission men, I believe, are honorable, and some shippers rogues, and *vice versa*. A producer or shipper may undertake to deceive by putting up packages by placing the very best where exposed to view, the inward parts being entirely different. Now, friends, have you ever noticed this in crates of honey? In passing among commission houses, and examining packages of honey, were you ever deceived by outward appearance or style of package as to real merits? You must answer in the affirmative. Now, deception is apparent, and prices obtainable for a prime article must be discounted. Remedy — every package put up and offered for sale should be neat, and not expose the very best, but be of uniform grade throughout; and as a guarantee of its being so labeled, something like the following (which I shall do hereafter) should be used: "This package is warranted to be fully equal throughout to parts exposed to view. Produced and put up by A. B. C.," followed by postoffice address.

In regard to placing on commission, I will emphasize—*don't do it*. For the past three years my own production of honey has passed through a commission house, but not on commission, but by actual sale to the party conducting the business, sales made f. o. b. cars at my station; time allowed purchaser, 90 days. I think all honey now handled on consignment could be sold direct to commission men; but in order to do so the producer must not be *dependent* but *independent* in the way of consigning on commission. Actual sales should be the motto. Now, it strikes me that all business of importance is being formed into trusts, or combines—iron, steel, wire, whisky and beer, sugar, twine, nails, glass, oils, paints, coal and coke—in fact, all or nearly all important business is under trusts or combines in some form, and prices articles are to be sold at are named by them. Why not honey as well as any other commodity? Can there be a formula adopted whereby our interests can be protected, and a more even rate of prices secured throughout the land, or shall we remain passive, and continue business as in years past? I am not a member of any national or State bee-keepers' congress, association, or union, yet I feel interested in upholding the bee-keepers' interests as far as possible. Come, let us reason together, then act—act judiciously, and I think there can be put in motion ways and means whereby all may be benefited.

Addison, Pa., Jan. 4.

[See editorial comment in last issue.—ED.

MARKETING PRODUCE.

HONEY SHOULD BE CONSCIENTIOUSLY GRADED; EACH CASE OF HONEY TO COMMISSION HOUSE SHOULD BE STAMPED.

By Edward Smith.

A great deal seems yet to be learned about marketing produce—for instance, honey. It seems that some people like to sham their honey by putting the best sections next to the glass, and filling up the rest of the crate with indifferent grades. Now, this is poor policy; and nothing is gained thereby, but a great deal lost.

I want to say, for the benefit of the inexperienced, that honey intended for market should be carefully and conscientiously classified, crating the dark and light separately. This may necessitate several grades. Then the heavy and light weight sections should be crated separately, and each grade marked on the crate. The net weight should be marked on each crate; then the purchaser, knowing the number of sections in a crate, can get an idea of the weight per section.

When the honey is to be sent to a commission merchant it is well that the name of the shipper be marked on each crate, and each section should have at least the shipper's initials stamped upon it so that it may be easily distinguished from any other lot. Then in case their trade becomes overstocked, and the shipper wishes his honey transferred to some other firm, this would insure prompt and safe dealings, without getting it mixed with other lots of honey.

The 12-pound crates are the best to use, as a general thing. The tare and net weight should be plainly marked on the box that the crates are packed in, and a different box should be used for each grade if practicable.

DISHONESTY IN PACKING FRUIT.

There is also a great deal of dishonesty prac-

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ticed in packing fruit. I heard several men say that, when they barrel apples, they put two layers of the nicest and largest ones in the bottom of the barrel, then they fill the barrel nearly full of inferior ones, and again fill the end with large ones. Now, if this is not dishonesty I do know what it is; and, besides, it works to their disadvantage sometimes. For when the apples are received by the commission man, one barrel is opened, and in many instances emptied out; then these are taken as a sample, and the whole lot is judged by them; then if they are not packed "straight" the packer is caught in his own device. The right way to pack apples, which is also a neat and attractive way, is to lay in the bottom of the barrel a circle of the largest ones, then a circle of smaller ones, and another still smaller, until the layer is complete (lay them with stems down); then put on another layer of average apples, and then fill the barrel rounding a little, and press on the lid; then turn the barrel upside down and put on the name and address of the commission man, the shipper, and also the name of the apples. It may seem like a big job to put in the two layers in this way; but I have found out that, by a little practice, one can become quite handy at it; and as they are at the end of the barrel that is always opened when presented for sale, they present a good appearance, without creating an impression that the barrel contains all large apples.

PLANTING BASSWOOD-TREES.

As the season for planting is drawing near, I want to tell a little of my experience with basswood-trees. Last spring I planted thirty, and some were three inches in diameter. I cut off nearly all of the top, made large holes so the roots could be spread out in their natural position, put in several shovelfuls of sand and gravel, then filled in the earth, and tramped it firmly about the roots, and not a single one failed to grow, and many of them cast shoots several inches in length.

Carpenter, Ill.

GROWING BASSWOODS FROM CUTTINGS.

ALSO SOME GENERAL REMARKS AND INSTRUCTIONS IN REGARD TO MAKING CUTTINGS FROM BASSWOODS, MULBERRIES, ROSES, ETC.

By John Craycraft.

In GLEANINGS, p. 643, 1895, I read about how to grow basswood and mulberries. Either will readily grow from cuttings, as will all soft woods, if cuttings are made from ripe wood. For basswood and mulberries, take off this year's growth, soon after the leaves have fallen off. Cut from 8 to 12 inches long; tie up in small bundles; place in damp sand, not wet; for if too wet they will die; and if kept in a warm cellar they will have calloused over by spring, when they can be carefully set in rows, and covered with a mulch of straw or leaves so as to keep them damp and shaded. They will soon start out leaves and roots, and will grow, if properly cared for, six feet high by fall. I have mulberries that were cut before the freeze of December, 1894, and just stuck into the ground where they are to grow, and covered over with trash. They are now as high as your head, and some of them now have several branches. Basswood will grow the same way. In my garden, which is all sub-irrigated by nature, from one foot to two feet from the surface, I can grow, from the cuttings, mulberries, basswood, figs, pears, peaches, plums, grapes, and all kinds of fruits and woods that drop their leaves in the fall, by making the cuts soon after the leaves drop, and sticking them into a clean prepared bed where the water can rise within about one foot of the surface, and drained so that it will not stand any higher if rain falls much. I stick them about four inches deep, so that there will be from four to eight inches above ground, and cover lightly with straw or leaves. That is all they will need here in Florida, except to keep the mulch loosened up so that it will not settle too compactly.

For evergreen woods, cut mature wood, perfect leaf, and fully developed buds. For lemon, orange, lime, grape fruit, and all the citrus family, cut about 4 in. long or less; two buds cut off; leave next bud of cut, and stick in sand to within one inch, or near the leaf; shade lightly; and, if sub-irrigated, but very few will fail to root and grow. I stuck about 100 roses of a vigorous half-wild rose we have here for grafting. The Marechal Niel rose opened about four weeks ago, and I see scarcely one fails to grow. I will bud them in January, or any time when mature buds can be had. Where you have sub-irrigation, and with it the heat from the waste steam, as you have, you can grow all the shrubs, trees, roses, etc., you desire, from cuts. With bottom heat, clean sand, shade, and a humid atmosphere, there is scarcely a wood, shrub, or plant, but will grow readily from the cut if taken from healthy, mature, developed wood. Nature has provided within every twig the element of self-production, if taken at the proper time. If I mistake not, the basswood does not all bloom prolific alike. Select cuts from the prolific, and you will have like prolific in bloom. Study nature and learn of life.

Astor Park, Fla., Aug. 27, 1895.

[No doubt the above plan can be made a success, even here in the North, in the way of propagating basswoods. There is certainly a great difference, not only in the time the trees bloom, but I think also in the amount of honey secreted. Cuttings made from a desirable tree ought to be worth a good deal more than trees grown promiscuously from the seed. My impression is, however, that it needs some experiment and study to get the conditions just right. Can any of our readers give us further facts from experience in this line?—ED.]

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THE NEW CONSTITUTION.

POINTS THAT NEED MODIFYING.

By Dr. C. C. Miller.

You ask, Mr. Editor, on what points the proposed constitution of the North American Union lacks my approbation. Well, I'll tell you, premising that I'm not at all sure I would not have made worse mistakes if I had been on the committee. "But in the multitude of counselors there is safety."

Point 1. In Art. I., notice of annual meetings to be mailed to members besides being publish-in bee-journals. Is there any need of mailing notices, seeing we've never felt the need of it heretofore? If there should be 1000 members it would make an annual tax of perhaps $15, and to no good purpose.

Point 2. Art. III., sections 3 and 4, lead to the supposition that the ballots are to be sent to one of the officers, who may be a candidate for re-election. That has been the case always with the Bee-keepers' Union, and I don't know that any harm has come from it; but it isn't certain that it would work with every one else as it has done with Mr. Newman. The thing is wrong on general principles. A ballot is considered better than a *viva-voce* vote, because a man is more free to express his preference than when he does it openly. But if the vote is to be sent to one of the candidates, that freedom is taken away.

Point 3. Section 7 of Art. III. may be all right; but just what does it mean? According to section 1 the president shall preside at the annual meeting; but according to section 7, some other man. According to section 7, a recorder is to do what section 1 says two other men are to do. Will there be no conflict between these three officers as to their duties? Then is a stenographer to be secured additionally?

Point 4. Art. IV. provides for one or more annual assessments. The old Union never had any thing of that kind, never seemed to need it, and the needs seem less now than formerly. Many men will willingly pay a stipulated amount annually who would stay out rather than be in danger of paying an uncertain amount at any uncertain time.

Point 5. The new constitution lacks a very important safeguard that was thrown about the old Union. A man who wanted the Union to back him if he got into trouble had to be a member of the Union before he got into trouble. According to the proposed constitution there is no such safeguard, and I may stay out of the concern indefinitely till I get into trouble, then come in and have all the benefits that the oldest member can have.

When you straighten up these five points I'll see if there are any others. But I want you to understand that I'm for amalgamation first, last, and all the time.

SHALL TEMPERATURE IN THE CELLAR BE UNIFORM?

After I got that sub-head written I stopped and thought awhile, then I took up the volume of GLEANINGS for 1895, neatly bound in—shoe-strings—sat down in my easy-chair by the Howe ventilator, read what R. McKnight says on page 946, and what P. H. Elwood says on page 852, and said to myself, "Sometimes I think—but then, again, I don't know—and the more I think about it the more I don't know what to think." The fact is, here's one of the things we know little about; and one of my Straws, Dec. 15, contains questions I'd like to have answered. McKnight seems to have gravitated toward a belief that a uniform temperature is a bad thing. I'm loth to accept that, and yet for some time my practice has been to run up the temperature of the cellar at intervals ten or twenty degrees higher than its usual condition.

If I could find out exactly what temperature is best for bees to be held at throughout the entire winter—understand I mean the temperature is not to vary a degree throughout the whole winter—and along with that if I could have the air of the cellar renewed once every 24 hours, I shouldn't worry a particle about doing any thing to wake up the bees for a spell of stirring about. But I run up the temperature of the cellar by spells for two reasons: One is, that the temperature may have been too low, and I want to make sure that every bee in the cellar finds it warm enough to turn over in bed if she wants to. The other reason is, that I want to make sure of pure air in the cellar. If the outer air is below freezing I can't very well air the cellar by opening doors and windows, but I can have it thoroughly aired by making the air so warm and light that the outer air, which is colder and heavier, will crowd in by reason of its specific gravity.

I have an idea that bees are all right—of course, I don't say I know it for sure—if the cellar is kept straight along all winter at the same temperature, and that at intervals they stir about enough to make some little change in their domestic arrangements, then settle down again. I suspect that, in a cellar containing 100 colonies or more, some one of the colonies can be found on the move at any given point of time, and that they don't need any firing-up of the cellar to stir them up, no two colonies perhaps having their "moving" periods at the same time.

Now, I suppose we might find out whether this view is correct. If I had two weeks, with nothing else to do, I'll tell you what I think I'd do. I'd get some one to change off with me, and I'd start in for a siege of watching some eight to twelve colonies. I'd note when each

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one of them stirred up, how long it kept stirred up, then how long before it roused up again. Possibly I might find that, with some or all, there was no such rousing-up period. But I'd wonderfully like to have some one find out about it. There's a field here, brethren, that needs exploring.

Marengo, Ill., Dec. 20.

[I believe Dr. Miller's points are all well taken. I know the committee did faithful work, and I thought they had covered every thing; but it appears there are some flaws that need fixing up a little. Now, to give this matter a practical turn, permit me to *suggest* that the executive committee of the North American request the committee on amalgamation to submit a new report, after considering carefully all the criticisms offered by Dr. Miller and others upon the proposed constitution. I have already laid the matter before the president of the society, and he acquiesces. The officers of the North American are, A. I. Root, President; Wm. McEvoy, Vice-president; Dr. A. B. Mason, Secretary; W. Z. Hutchinson, Treasurer; and the committee on amalgamation, Dr. Mason, T. G. Newman, and J. T. Calvert. I will send marked copies of this to all the persons named, and suggest that they write to the president, signifying their wishes.

I do not want to "run the thing" myself; but I only desire to bring it to a focus so that the North American can at an early date submit a new report to the Union, to be acted upon by that body. I do not believe a better committee can be appointed than the one which acted before; and all that is required now is *authority* from the executive committee from the N. A. B. K. A. for them to act.—ED.]

MALTED MILK.

EXPERIMENTS IN FEEDING MILK AND EGGS TO STIMULATE BROOD-REARING.

By F. Greiner.

Langstroth is probably not far out of the way in suspecting malted milk, in connection with honey, to have valuable qualities as a food for bees, especially in the early spring, to induce brood-rearing. In my location, willow, elm, and the maples, etc., furnish an abundance of early pollen, and our bees breed up fully as fast as necessary without stimulating. But since our German friends across the water had so much to say in favor of feeding milk and egg—this was twenty years ago—I tried their method in a somewhat limited way. My bees took the feed all right; and had I continued I might have seen wonderful results, no doubt. This sort of feeding proved with the Germans a most powerful agent to bring colonies to the maximum strength. At the time, I was greatly interested in the articles on this subject, and I keep them on file.

During the years that followed, nothing more in regard to the matter was said in the German bee-journals. This somewhat surprised me, and so I wrote to Gravenhorst about it (in 1886). In his reply he says about as follows:

We in Germany have almost entirely discontinued feeding milk and egg to bees; it requires the greatest of care and precaution to not cause foul brood to develop by so doing. It also proves to be profitable only with already strong colonies. Less strong colonies are more injured than benefited. I have tried, but discontinued the practice.

It seems to me that our friends over there fed probably too much at a time, and the feed, instead of being consumed at once, as it should have been, was partly stored; decomposition set in, and so the mischief commenced. At all events, it may prove a wise course to profit by the experience of those who have already tried feeding milk, and commence where they left off.

I mention the above to place on guard those who may wish to experiment with the malted milk,* as suggested by Langstroth. To those who need very strong colonies very early in the spring it may prove a good thing.

The question as to "how long may eggs (that would produce a queen or worker-bee) be kept out of the hive, and hatched when subjected to incubation?" is an unsettled one. There is little doubt that much depends upon the temperature they are kept in; and perhaps the amount of humidity in the surrounding air has something to do with it. I believe that, under favorable conditions, eggs might keep for several weeks; still, I do not know these conditions. It would not be unreasonable to suppose that eggs, to be kept, should be freshly laid. After incubation has once begun there will be little chance for any egg to retain its vitality, judging from analogy of the eggs of our domestic fowls. In a whole frameful of eggs, although it may not have been in the hive for more than two or three days, will probably be but few eggs in condition to keep. Drone eggs do not keep long under ordinary circumstances. After keeping them out of the hive four or five days I always had them promptly removed. It may need some careful experimenting to get at the truth of the matter. So far no extensive conclusive experiments have been made that I am aware of.

It is not impossible that the solution of the advanced egg-moving theory may center in a possibility of eggs keeping good for a long time when the conditions are right. I do not think enough evidence has so far been produced to make the theory any more than a theory. However, I do not wish to intimate that an untruth has been reported with any intent. The observer may have been ever so honest and sincere; but may he not have been misled? Many careful and keen observing men and women have kept and are keeping bees, and still such a thing as transferring eggs has not before been observed. To me it does not look possible that so delicate a structure could endure such usage. Examining an egg we find it tightly cemented to the bottom of the cell; and this cement is so tenacious as to prevent

* Please tell us what is malted milk.

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any effort to loosen it and have the egg remain intact, unless part of the cell-bottom is also carried away with it. A transferred egg would also have to be secured (in its new place) in a natural position; that is, standing on end at an inclined angle. (It seems as if this would be difficult for a bee to do.) It is a fact, that the embryo in an egg, lying on its side, dies before it could develop sufficiently to break through the shell—in other words, hatch.

Naples, N. Y., Jan. 8.

[I can not tell you what malted milk is. Very likely it is a secret preparation known only to the manufacturers.

With regard to eggs being moved by the bees, you seem to express some doubt. Quite a number of cases were reported in our back volumes where bees were known to carry the eggs and deposit them in another portion of the combs. In looking over our back numbers I ran across one given in 1883, page 328. I believe I have before reported having myself seen the bees carry eggs. I did not see them take them out of the cells, and was not interested enough at the time to watch to see what they did with them.—ED.]

AT WHAT AGE DO QUEENS LAY?

Question.—Last season I had a colony that cast several swarms. Ten days after the last swarm issued I looked into the hive but could see no eggs. Two days later I opened the hive to give them some brood, supposing them to be queenless, but now I found some eggs. This would make the queen about twelve days old before laying. Is this common?

Answer.—As a general rule I expect to find queens laying when ten days old; but I have found them laying when only seven days old, and had fecundity delay as long as twenty-four days. The young queen, when weather and every thing is propitious, generally leaves the hive in search of the drones when she is from five to eight days old, the majority going on the seventh day to a successful mating. Some queens meet the drone on the first flight; but the majority fly out and are gone a few moments, to return without mating—my opinion of this being that they fly a few rods from the hive at this time, to carefully mark their location and void their feces. The next time they fly, they go for the sole purpose of their wedding-trip, and they will usually be found laying in two days from this second flight, if the day is fine and drones plentiful. The time of the year and the state of the weather have much to do with the time a queen begins to lay. In early spring or during the fall, queens rarely lay till they are from twelve to fifteen days old; and if a week or ten days of stormy, cloudy, and windy weather should happen to occur when any young queen is about five days old, she would not even attempt to leave the hive till she was from twelve to fifteen days old. Thus the questioner will see that what he gives is only a common occurrence. Many a queen-breeder has had stormy weather prevent the mating of queens till it would so happen that the queens from nearly all of his nuclei would fly out and begin to lay at about the same time, although such a state of affairs is not to his liking, as it means the destruction of many queen-cells which he hoped to save, and then a shortage of cells when he most wishes them, owing to his being obliged to send off so many queens all at one time.

QUEENS BEING "BALLED."

Question.—Last summer I had two swarms come out very nearly together. The first had a queen with its wing clipped, and the most of the bees had returned when the other issued, this last swarm having a queen with perfect wings. The swarm clustered and was hived in the usual way. In half an hour or so this swarm began leaving its hive and went straggling back to the parent hive. After a little I opened the hive and found a ball of bees nearly as large as my fist on the bottom-board, and in this ball of bees was the queen. Why did these bees act in this way?

Answer.—In this question the writer has touched what has been to me one of the greatest nuisances in natural swarming, for I have had scores of very similar cases. Often, when I was about leaving home for church or some other place, when time was precious, I have had swarms issue, I hiving them with the thought that I had done a nice thing in a little time; but by the time I would get the horse hitched up and all ready to depart, the bees would begin to show a commotion and return to the old hive. If I had hived them on the old stand, as I generally do, they would scatter all over, going into other hives only to be killed, or received according to the condition of the colonies where they went, this often keeping me at home, or making me so late that the pleasure of the trip was nearly or quite spoiled. I have carefully studied into the cause of such procedure, and believe it comes about by a few bees from other swarms or hives entering the new hive with the new swarm; and as these bees are strangers to those composing the swarm, the queen is balled for safe keeping till all get acquainted, or from some other reason best known to beeology. As soon as a queen is balled for any reason, the result is very nearly the same as would be the removal of the queen, which, as all know, is a stampede and general search for her. Failing to find her, their only alternative is to go home, if they would preserve their existence; for staying where they are, without a queen, means that they go out of existence as a colony, when the bees which

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make up the present swarm cease to exist, from death by old age, or otherwise. Knowing that the supposed loss of the queen is the cause of the trouble, the only way to remedy the matter is to help them find their queen. This can be done by opening the hive as soon as the bees are seen to become agitated and fly out in the air, and smoking the ball of bees till they release the queen, when a general hum of content will be set up, the bees who have missed "mother" running about with fanning wings, and those in the air returning to the hive with a general rejoicing. This once smoking generally restores quietude with the swarm; but in exceptional cases the bees will re-ball the queen in ten minutes or so, when another stampede will occur, many bees now being likely to go home to stay, so that, do the best we can, our swarm is so weakened that they will be of little profit to us during that season. To obviate these exceptional cases, I made a few large flat wire-cloth cages, large enough so that they would cover quite a large part of the tops to the frames of the hive; and when I had smoked the ball of bees until the queen was liberated she was put in this cage and placed over the frames. As multitudes of bees could now get near the queen, and the whole colony become aware of the presence of the queen among them, no more trouble would occur, the queen being liberated the next morning, when all was sure to go well. A frame of brood will generally hold the bees; but as they sometimes ball the queen till she is injured, I prefer the cage.

Heads of Grain from Different Fields.

DEATH OF MRS. LYMAN C. ROOT.

The sad intelligence reaches us of the death of Mrs. Libbie Quinby Root, only daughter of Moses Quinby, and wife of Lyman C. Root, which occurred at her home in Stamford, Ct., Jan. 16, 1896. Mrs. Root was stricken with paralysis on the morning of the 15th, and died the following morning. She was a woman of rare intelligence; and had she given her attention to literary pursuits would have gained celebrity. She was an easy writer of choice English. Bee-keepers knew her as literary editor of Quinby's Bee-keeping, and later of the same book as revised by her husband. The sketches from which the engravings were made for these works were also from her pencil. She was a natural artist, and in drawing or painting from nature showed genuine artistic talent. Her highest ambitions centered in her home and in the education of her daughters. No matter how busy with household duties, or with the entertainment of visiting bee-keepers, time was found for the daily lessons of the girls, and also for reading and discussing with the family the best books and literature. In thus giving her life so unselfishly to the improvement of others her own character developed by the maturing of those qualities of mind and heart that must endure for ever. It is gratifying to be able to state that the husband and family fully appreciated her many excellent qualities. Her presence, her sympathy, and her counsel will be sadly missed in the home circle.

Bee-keepers everywhere in the English-speaking world will unite with me in extending heartfelt sympathy to the husband, daughters, and aged mother Quinby. P. H. ELWOOD.

Starkville, N. Y., Jan. 22.

RHUBARB, OR PIE-PLANT, IN FLORIDA.

A year ago, when I was leaving my home to take a train for Florida, a friend called with a basket of pie-plant roots for me to take with me. My baggage was then at the depot. I filled a paper-box, and took them with me. When I arrived at Pensacola I stopped at a hotel kept by a former resident of St. Andrews. I apologized for carrying the box in my arms, saying that a friend brought me pie-plant roots after my packing was done. She said, "Oh! give me one. I want to try one here—just one, no more." When I lived at St. Andrews I tried a dozen times to raise it, and failed, and I want to try it here. It would come up and grow nicely, and I would think I'd soon have a pie; but I never did. I noticed that the leaves would fall over, and, digging down, could find no root. It had disappeared, I know not how.

A lady at St. Andrews, who is setting out some plants, told me she lined the hole with broken glass to keep the moles from destroying the root. I thought I would protect my pie-plant in that way. I dug holes, and lined them with glass, filling with fertilizer and rich soil. I planted the roots, covering the tops with oyster-shells, congratulating myself that I had outwitted the moles. They grew finely, and attracted much attention, and I was frequently asked, "When are you going to have a pie?" But the *pie* never materialized. First one leaf and then another fell over on the ground, looking as if cut off close to the root. I examined it closely, but I could not discover what destroyed it. Some said it was a worm; but I failed to find any, or any thing else. I'm told that it can be grown on titi or swamp land that has been drained and reclaimed. I hope that our friend at Tarpon Springs, Fla., will continue to be "tickled" over his rhubarb, but I'm a doubting Thomas.

The winter here has been cool, cloudy, and much rain has fallen. It is pouring down, and has been for two days. A warm sunshiny day is appreciated.

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The gardens contain lettuce, radishes, onions, and turnips, and should have beets and cabbages. Gardeners say that it was too dry in the fall to raise the plants. A. I. R. would have managed to raise them. Strawberries and peen-to peaches are blooming. The peen-tos are silly. They may get frozen for their precocity. MRS. L. HARRISON.

St. Andrews Bay, Fla., Jan. 22.

THE result of the election of officers of the Bee-keepers' Union shows that all the old officers were re-elected. The names stand as follows: General Manager, Thomas G. Newman; Pres., Hon. R. L. Taylor; Vice-presidents, Prof. A. J. Cook, G. M. Doolittle, Dr. C. C. Miller, Hon. Eugene Secor, A. I. Root. The question of amalgamation with the North American will be submitted later.

SEVERAL of our subscribers have called our attention to an article in a recent number of Green's *Fruit-grower*, where an editorial footnote seemed to not only pronounce the bees a serious hindrance to fruit-growing, but also recommended fruit-growers to hang up bottles of sweetened water to destroy the bees. In view of this we are pleased to see the following from the editor:

Dear Sir:—Thanks for your letter, which we will publish. The article you refer to was not written by our editor, who is a friend of bees.

Rochester, N. Y., Jan. 16. GREEN NURSERY CO.

IN writing upon the question of building up colonies in the spring, Dr. Miller offers, in the *American Bee Journal*, this very sensible advice, and I give it right here because so many make the mistake every season of trying to strengthen up weak colonies instead of turning what little strength they do have toward the strong:

Whatever you do, *don't* try to build up weak colonies by giving them brood and bees from stronger colonies; for, although the weaker colony will gain by it, that gain will be more than counterbalanced by the loss of the stronger colony. Rather take from the very weak, and give to those that are of medium strength. Indeed, it is not a bad plan to break up entirely the very weak ones, and unite them with the stronger; then later in the season you can more than make up your number with what the strongest can spare.

IN our last issue, page 111, I referred to the practice of some commission houses, of quoting higher prices than the market justifies, in order to get consignments. If any of our people—that is, those who make quotations in our Honey Column—make a practice of this, I hope our readers will give us the names at once. If they persist in the practice, we will simply drop them. If bee-journals and bee-keepers unite in this I think we can put an end to what has been working a great injustice for years back. When a bee-keeper sees quotations at so much, he ought to have reasonable assurance that he will be able to obtain about that figure. Of course, I appreciate the fact that a good and honorable commission house may be deceived, and not able to realize what they *think* they can get. Well, then they should make their prices conservative; and then if they can do better than they promise, they can rest assured that next time they will be patronized again.

MORE SUCCESSFUL MAILING OF QUEENS TO AUSTRALIA.

WE are getting excellent reports of shipments of queens to Australia. In our issue for Oct. 15, p. 774, we illustrated A. E. Manum's cage for export purposes. This, you will remember, contained the usual candy-holes, and in the center an oblong space in which a small amount of sealed honey was placed. The object of the sealed honey was to act as a sort of relay if the candy should fail to be a suitable feed. Well, we used these cages exclusively on the last shipment; and if success in mailing means any thing, the addition of a honey-hole is a decided hit. Oh, no! it is not a new idea, because honey was used before the Good candy. As I have told you a number of times before, we often have to go back to old things in order to improve on some of the later good things.

HORN-BLOWING.

PERHAPS publishers who also manufacture supplies are justly accused at times of blowing their own horns. If we have done it in our case we have allowed some of our competitors, not exactly to blow their own horn, but to tell of their own progress in the manufacturing business. Yes, we even let men who have particular hives and fads praise their own goods at the expense of our own. Witness, for example, the article by Mr. Danzenbaker, in our Trade Notes for Jan. 15. In next issue (see Trade Notes) I shall take particular pleasure in referring favorably to a style of hive that we do not manufacture, and possibly never shall. When GLEANINGS gets to the plane when it allows nothing but one kind of hive or section to be boomed, and that the hive and section of its publishers, I shall feel that its day of usefulness is gone; and so long as I have hold of the editorial reins of beedom, I desire to have every good idea given a reasonable space.

MY MEAT AND YOUR "STUFF."

WE are giving our readers a large range of reading-matter; and while some of it may be regarded as "stuff" by some, it is impossible that all of our large constituency should place an equal estimate upon every thing that we publish. We put on full headlines, and, like

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the one who sits down to a table filled with good things, we expect each reader to select those things which are to his liking. I do not expect, for instance, that the bee-keepers of Florida will care for the subject of wintering, neither do I expect the bee-keepers of Minnesota or Vermont to be interested in how to get rid of a certain kind of ant and other pests that trouble bee-keepers of the South. But locality does not altogether give us a division of tastes. One class of readers may be interested in every thing that is said regarding California and its phenomenal honey-yields. Another is anxious to know all about the subject of large and small hives. Another eagerly devours every thing on greenhouses and gardening; and still another, Home talks, and hints on health and health-getting. What is my meat may be another's poison. What may be "stuff" to me in the way of reading-matter may be exceedingly interesting and profitable to another. If one does not like to wade through what to him is "stuff," let him go over it (headlines) at a hop, skip, and jump, and settle on that which he does like.

TAYLOR'S EXPERIMENTS IN HEATING HONEY.

THE following card came to hand from our friend R. L. Taylor, which will explain itself:

Friend E. R. R.:—Do you wonder that we get out of patience with editors sometimes? Well, I think you won't when you remember that at least twice in GLEANINGS you have intimated that my experiment in heating honey proved nothing because there was wax with it; when, if you had read my account of it entire, you would have seen that the wax was removed at 165°, when there was but a very slight change in the honey. R. L. TAYLOR.

Lapeer, Mich., Feb. 6.

On receipt of this card I turned to the December issue of the *Review*, and I find that friend Taylor does say this: "The heating process then continued to be applied gradually to the remainder till its temperature reached 165 F., when both honey and wax were melted, and a sample of the honey was again taken after the removal of the wax. The temperature continued to be raised, and samples of the honey were taken at temperatures of 185 and 200° Fahr." To make sure that I made no mistake I remember of reading the latter part of the article over three times; but I did not then construe the sentence just quoted as it is interpreted in Mr. Taylor's card—certainly not as applying to 185 and 200° F. I must have taken it that a small sample of the wax and honey was taken when it was raised to 165 degrees; that on cooling, the wax was removed, and the honey tasted. It doesn't seem to me from the quotation that it is clear that the wax had been removed from that which had been raised to 200° F. But I see that Mr. Taylor meant the other way, and perhaps I was a little careless in construing the sentence as I did. At all events, it is unfortunate, I think, that the honey tested should have been *comb* honey, when it would have been so easy to get extracted.

We make a business here of melting wax, ton after ton of it every season, and know something about the effect of heat upon wax at various temperatures. For a couple of years we have been doing quite a little in the way of melting up old discarded combs containing honey in solar wax-extractors. In the large Boardman, with a single glass, the temperature seldom rises much above the melting-point of the wax; but we assume that it may rise to 165. All such honey, when taken out, has quite a preceptible flavor of wax; but perhaps Mr. Taylor will say this would prove nothing, because his honey at 165 underwent but a very slight change; but however slight it might be, I should say it was due almost wholly to the fact that the honey had incorporated something of the properties of the wax. These properties would make themselves more disagreeably manifest at higher temperatures. Or, in other words, the properties of wax that might have been incorporated in the honey at 165° F.—sufficient to have affected the honey slightly—would, under a temperature of 200, become quite pronounced, even assuming that the bulk of the wax, or such as could be taken out, had been removed at 165° F.

Again, we note that honey has a wonderful property of absorbing flavors from surrounding bodies. We have to be careful what kind of barrels we use, or else the extracted honey will taste woody; and the bee-keepers of California know to their sorrow that the square oil-cans, even when thoroughly washed out with hot soda and water, will impart to honey some of the coal-oil flavor. Wax melts at 145; and from that point up to 165 it could impart to honey heated with it a considerable of its properties in the way of flavor and coloring-matter. This same flavor and coloring would be intensified at higher temperatures.

In view of what Mr. Taylor has said in his card, I will not go so far this time as to say that his experiments prove nothing; but I will say that they would have been much more satisfactory if he had used honey entirely free from wax. I can not help feeling that the result would have been considerably different had he used that. It is to be hoped that, in the near future, as the experiment is so easily tried, he will test the thing again. Our own observation has satisfied us that extracted honey is not injured when brought to a temperature of 180, and then sealed in glass cans. Some of the finest and best-flavored honey we ever had was this very lot.

I grant, friend T., that editors are provoking. Well, I want to offer a professional secret: Once in a while we wish that we could re-write what

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we have once said; but in this one case I don't know that I should wish any thing unsaid *providing* it will cause further experiment.

ADULTERATION ON THE INCREASE.

IN our last issue, page 113, I referred to the fact that adulteration of honey, on the part of preserving and syrup companies, seemed to be on the increase, owing to the apathy and "hush-up policy" of bee-keepers in general. I also gave at that time a sample letter from one of the preserving companies, asking if we had empty comb for sale, from which the honey had been extracted; that they wanted to use it in "selling strained honey." Since that time, another letter, quite in line with this, has come to hand, and I give it for what it is worth, omitting the name of the company.

The A. I. Root Co.:—Do you furnish or manufacture artificial comb not filled with honey? There is considerable sold in tumblers—that is, a piece of artificial comb is placed in tumblers and then filled up with strained California honey. If you can give us price, method, and particulars as to how to go about it, we believe that we can sell considerable. Awaiting your reply we are

Yours truly, ——— ———

Feb. 1.

By the heading they make a specialty of preserves, mince meats, and "refined syrups." It seems to me it is perfectly evident what these people propose to do with the honey-comb. Strained honey! nonsense! They may use a little of it, but I suspect glucose will be the principal ingredient to surround a little piece of comb—the only honest part of the whole.

Two letters like this have come to hand within a couple of weeks; and from reports of "cheap honey" for sale at the groceries all over the country, it is more than evident to me, at least, that the adulteration of honey is gaining on us, and just because there are a certain few who feel that we ought to hush up and stay hushed up, because, forsooth, so much talk and clatter will injure the honey business.

Now, there is no use, it is true, in howling about adulteration unless bee-keepers *do* something; and one of the first things is to petition your members of the State Legislature to pass laws forbidding the adulteration of honey, syrup, or any other product—if there are not already such laws on the statute-books. Some States have fairly good pure-food laws; but the majority of them are sadly in need of doing something against this wholesale adulteration.

Then, of course, bee-keepers can do something more: suggest ways and means for the Union to take hold of these cases. When it (the Union) becomes reorganized again, it can work toward the passage of such laws as I have spoken of. It has done a grand work in the line of defense of bee-keepers against unjust legislation, and here is open another grand field in securing the passage of laws in every State of the Union, designed to protect pure honey from unjust competition.

THAT BEE-BOOK BY FRANK BENTON; DUTIES OF BEE-KEEPERS AT THE PRESENT HOUR.

IN our issue for January 1, I gave notice of the publication from the Agricultural Department, Washington, D. C., a bulletin by Frank Benton, entitled, "The Honey-bee; a Manual of Instruction in Apiculture." At that time I stated that 5000 copies were to be issued, and that they would be for free distribution to every one in the order in which the requests were received. It seems that an order on the public printer was made for 5000 copies, but there was a limit to the appropriation, and so the edition was reduced to 1000. These were sent out as far as they would go, and now I understand there are 1500 applications for the book, which can not be supplied. Representative Wadsworth has introduced a bill, which, from present indications, seems likely to pass, authorizing the public printer to get out 20,000 copies—5000 for the use of the Senate, and 12,000 for the use of the House. While it is likely to pass, it will not do so unless bee-keepers petition their members in Congress. In relation to this, Hon. Geo. E. Hilton sends in the following letter which will explain itself:

Friend Ernest:—Will you please, through next issue of GLEANINGS, urge all bee-keepers to write their Senators and Representatives at Washington, to support House Joint Resolution No. 92, providing for the printing of 20,000 more copies of Mr. Benton's Bulletin, "The Honey-bee"? and if an amendment is offered to make it 100,000, to support the amendment. I am pulling every string to get these printed for free distribution. All my Senators and Congressmen have promised me their support, and others will do the same if they are appealed to by personal letter. I have told them there are 800,000 bee-keepers, and we should have 100,000 copies. Everybody write, and they will think there is a million of us. GEO. E. HILTON.

Fremont, Mich., Feb. 6.

It only remains now for bee-keepers to do their duty. Let the government know that we are not a mere handful—that, when we ask for a thing, if we ask unitedly, we are a big army. I am well aware that the general distribution of this book to the extent of 100,000 copies might seriously interfere with the sale of *our* book. All right. If we put aside all selfish interests we should wish for the general dissemination of facts and figures about the bee-keeping industry—in short, how to keep bees. All this, and more, is set forth in Mr. Benton's admirable work. If the government will issue a generous edition, which I hope it will do, it will do more for bee-keepers than it has ever done before.

Should the bill pass, authorizing more copies of the book to be printed, write to your representative in Congress for a copy. Write him any way, and so get in line with your order. *Please don't* send to us, as we can't supply them.

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OUR HOMES.

SICKNESS IN THE HOME—CONCLUDED.

Of course, Dr. Lewis, of Cleveland, was consulted in regard to the patient. I had talked with him in detail in regard to malarial fever. He said I was right in my conjecture that a person *could not* take malarial fever, or hardly any other fever, while the system is kept in healthy working order on a diet of lean meat. Mrs. Root had scarcely tasted of the meat she was cooking daily for the rest of us for many weeks. She said her appetite craved something else. You will remember that, while I was in Portland, Ore., I had my second attack of malarial fever, and I told the doctor I could not bear meat. I constantly craved fruits and something sour. He said it was a morbid appetite for the very things that were hurting me. When we asked Dr. Lewis in regard to the choice of a physician, he said the allopathists and the homeopathists—at least the progressive ones—were falling now into nearly the same line of treatment, especially for fevers. Let me give you a little illustration:

Forty years ago I was taken sick while in the store. I went home, and sent for the doctor. He was an old gray-headed veteran. He said I was just coming down with typhoid fever. I have always been on pretty good terms with doctors. He and I had often talked the matter over before, and he said he could break my attack promptly if I was willing to take calomel. He frankly acknowledged he did not like to prescribe it; but he added something like this:

"Mr. Root, we doctors have counseled together, and talked this matter over; and the general verdict has been that, where we try to doctor without calomel because the patient or the friends object to it, the patient dies; but where we administer a proper dose of calomel when the disease has just set in, as it has in your case, they get well."

The doctor in Portland, Ore., tried to get me up on my feet with milder remedies; but he, too, finally gave me some preparation of mercury. When Mrs. Root had symptoms that indicated typhoid fever, I talked the matter over with my homeopathic doctor, and he surprised me by saying, "Why, bless your heart, Mr. Root, homeopathic doctors—at least the sensible ones—do use mercury. If not in the form of calomel and blue pills, we have the same agent in a better and safer form. Mrs. Root is taking mercurial medicine now."

Of course, I felt satisfied; and, more than that, I felt thankful to know that our skillful physicians are getting into a beaten track; and may God grant they will get to a point where one school will have enough of the grace of God in their hearts not to call everybody of the other school a quack, and pitch his medicines out of the window whenever they have a chance. Yes, and I may thank God that ministers of the gospel are getting so they too can shake hands, and not only *call* each other brother, but exchange a brotherly greeting that comes from the bottom of the heart.

You may ask what all this talk has to do with the homes where GLEANINGS goes. Has it not occurred to you, dear brother, that there is a message in it for *you?* You may have been called upon to bear with sickness, affliction, and possibly even death, and you may not. In either case I bid you to remember the words of our text, "I will make him a helpmeet for him." I have told Mrs. Root many times during our married life, that, among all the good and precious and gracious gifts God has seen fit to give poor unworthy me, there is none that I prize as I do her precious self. Dear brother, have you not said as much to your good wife, your faithful helpmeet, your untiring, dear, and loyal partner? Why, the word "loyal" has *always* been a pleasant one to me. I like to see Americans loyal to the stars and stripes; I like to see them loyal to the laws of the land; I like to see the Canadians loyal to their queen; I like to see workmen loyal to their employer: yes, and I want to see the employer loyal to his helpers—loyal in the best sense of the word. But, oh! above all I do love to see *husbands* and *wives* loyal to each other. Most men *are* loyal, I believe—that is, they are loyal after a fashion. "May God help them!" This last little prayer came of itself, as it were; but the women—oh may God be *praised* for the wives and mothers! It seems to me a woman must be a mother, or at least have a motherly feeling in her heart before she can truly comprehend the great need—the *tremendous* need—that *she* should be loyal—loyal to the home, loyal to the children, loyal to the husband. And while I think of it I *do* believe the wives and mothers are the best illustration of the word "loyal" that the world has ever seen. What patient, untiring, unremitting loyalty is theirs! Whether the husband be loyal or not; whether they ever get a kind word or any token of appreciation or not, still they are loyal and true and unwearied. I wonder if we ever think of that old familiar text, "Be not weary in well doing;" and I wonder if the husband ever thinks of the latter part of it—"In due time we shall reap if we faint not." Dear husband and brother, let me urge upon you the importance of seeing that this latter part be fulfilled. Let the dear wives see the crops *they* are reaping—the grown-up boys and girls that are beginning to be *loyal* in a boyish and girlish fashion to their mothers. It did me good to see the children of our household, old and young, married and single, son-in-law and daughter-in-law, each one begging for something to do or for some burden to bear—something for the suffering mother of the household, and almost mother of the neighborhood.

Well, what has been the effect on myself? Am I a good deal better man—at least in the home—than I was a month ago? I hope so; but almost every hour reminds me of the first line of a little hymn my father used to sing:

Prone to wander—Lord, I feel it.

Some of my friends scold, however, when I confess my shortcomings before the world, as they put it. Well, they need not scold just now, for my sins of the present are mostly confined to those of omission, or forgetting myself. I believe that, since mother is able to be around the house, and to sit with us again at the table, I have been more gentle, more kind, more careful about rushing into the house without waiting to clean my feet or put on my rubbers when I go out. I am sorry to say I do sometimes get "stirred up," and speak hastily, even yet; then comes the thought of those days and nights of watching and suspense; and the brief prayer wells up, "Lord, help!"

I must tell you of one little circumstance that I forgot. I think the crisis in her sickness was during our coldest night, just after New Year's, when the thermometer was down to 5 below zero. The doctor directed that the temperature of the room be kept as near 65 as possible, and at the same time she must have air from outdoors. Rather late we succeeded in getting her to sleep, and I went upstairs to bed. As soon as I was fairly sleeping soundly, however, the nurse called me for something needing me personally. I went back to bed, and was almost (or quite) in the land of dreams again when I

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heard the fierce zero wind whistling through the attic. Let me explain that, while our house is warmed mainly by means of hot water from the exhaust steam from the factory, we have, during the past winter, put in a furnace heater to reinforce the water-pipes on Sundays when the factory is not running, and during severe weather in winter. In the attic is a soft-water tank, or standpipe, for the hot-water pipes. Just as I was getting to sleep it occurred to me that this fierce wind, with the low temperature, might possibly freeze over the standpipe. *Then* if we should fire up the boiler in the cellar the pipes would be bursted, and the house would be flooded with water at a time when such a catastrophe might turn the scale between life and death. I climbed up into the attic in my night clothing. My teeth were chattering before I reached the tank. Sure enough, it *was* frozen over. One blow with my fist, however, broke the ice, and then I went down precipitately to the cellar to fire up the heater; but when I reached there I remembered that the sick-bed was in the room just above. The clatter of shoveling coal and handling the furnace might awaken the patient. I picked up lumps of the hard coal with my fingers—enough to make a huge fire that would last until morning. Then it occurred to me that the tank in the attic would stand a very much better chance if it were covered with some carpeting I knew where to get hold of. By the time this was done my teeth were chattering again; but as my sleeping-room had a radiator in it I was soon comfortably warm.

To be sure that all my racket had not disturbed and worried the patient, I stole down once more to the sick-room, and my heart was gladdened on finding not only the nurse sound asleep, but the dear wife was breathing almost as quietly as if she had not been sick at all; and then another prayer of thanksgiving and praise went up to the great God above. For many days and nights before, even in her sleep, there had been groans of distress from the pleurisy, and incoherent talk from the delirium, that was plain to be heard, even in the dining-room.

Next morning, when I told my adventures of the night, Mrs. Root said, "Why, you poor dear husband, it was really *wicked* to disturb and weary you like that. I think I must have been out of my head when I told the nurse to wake you up. Since you speak of it, I have only the faintest recollection of something of the sort." Then they all wondered when I told them that my night experience had been an *exceedingly happy* one. It was a happy one because I was enabled to do service that gave relief and sleep to the dear wife; and when I woke up at intervals it was not with that disturbed and awful feeling that I had been having for so many nights before. Let me explain: After the worry and anxiety of the day I would quickly fall into a sound sleep. This will apply to my daytime naps as well as to my sleep at night. When I first wake up it is almost always with a feeling of light-heartedness, joy, and thankfulness; but during this period of uncertainty and anxiety I would wake up as usual, and then would come the feeling, "Oh! what is it—that dull heavy load, that awful dread that was with me when I lay down?" Finally the sad truth would burst upon me, "Oh! it is the dear wife;" and then the burdens and care and anxiety settled themselves down upon my shoulders as before. But God in his gracious mercy has seen fit to give her another lease of life, and in so doing has given me back again that precious gift, the greatest gift God ever gave to man, a "helpmeet."

RATS AND MICE, PIGS AND CHICKENS.

Some of you may wonder what the above heading has to do in the department for High-pressure Gardening. Well, it has a good deal, as you will see when I get to the end of my story. Some years ago I visited a very fine country residence; and the owner, in showing me over his premises, marched us into the kitchen or dining-room. Said he:

"There, friends, do you see any flies about here? There are no screens up, and the doors and windows are wide open."

We were obliged to confess that we did not see any; and yet their absence during an August afternoon was so unusual we asked for an explanation. It was something like this:

"Boys, the flies do not come here, because we take great pains to leave nothing around that can bait them. See here! The place where we wash dishes, and every thing that might attract flies, is inclosed fly-tight. These lids shut down as you will notice, so that every thing is so quickly out of the way the flies have not time to get baited and congregate here."

You see, it is something like letting bees start robbing. I am not sure that flies go back to their home, and bring others along with them, but they operate much in the same way. It is a shame and a disgrace to have a kitchen or dining-room blackened up and disfigured by flies or flyspecks. Why! if a body is ever excusable for committing suicide, I have sometimes thought it might be the one who is obliged to live and stay constantly in the presence of such filth and annoyance.

Well, I did not start out to write about flies, so we will switch off by remarking that rats and mice come under the same category. If you do not bait them or leave articles of food exposed they will not be around. Some of the young friends here on our premises look at me in astonishment because I make a fuss when somebody spills corn, wheat, or other seeds, that mice are fond of, and I suppose they think I am getting to be a fussy old man when I complain if they do not get *every kernel* when they go to work to sweep it up. But I think my head is level, after all. We have no rats or mice in our seed-room; and yet great quantities of seeds and bags are piled up everywhere. We had so much alsike and buckwheat, however, that it had to be carried into a distant building for storage, a few days ago, and pretty soon I was told the mice were just riddling the bags. The cat and bisulphide of carbon were called into play, but still the mice bothered us. Finally we made a platform of plank laid on some tall stone crocks, and the sacks of seed were stacked on this platform. Now they are untouched. Then somebody said there were mice in the machine-shop. I directed the boys to get a dozen traps and set them all over. Then somebody said there were mice also in our new upper saw-room, where nothing but lumber is used. What should mice be doing in such places? Why! some of the friends, may be the newer ones, while eating their dinner, carelessly scattered the crumbs, or perhaps threw their viands on the floor, or into a basket of shavings.

Now, I hope all our helpers will read this; and I hope they will help me in carefully saving every scrap and crumb left from dinner. What shall be done with it? Well, if they will

take the trouble we should be very glad to have it put into our slop-pail near the door of the kitchen, and said pail is emptied every day or oftener. It pays us to carry these scraps to our chickens; and it would pay you, my friend, not only in the way of keeping away mice, but in utilizing the waste product. If you have no chickens, get enough to use up all the scraps and waste of the tables; and then make sure that every thing that a chicken will eat gets to the chickens promptly. Potato-parings and cull beans, etc., should be boiled and made into a mash for the biddies. It will not only pay, but, when you get used to it, it is a great comfort to see every thing slicked up, and neat and tidy, and utilized. "Gather up the fragments, that nothing be lost," as our Savior enjoined in olden times.

Now you see, probably, what *role* the pigs are going to play at the close of my story. They not only take what the chickens can not use, but with the market-gardener he can give them all the refuse from the garden. When it comes "pussly" time, if you are so slack that these or other weeds get big enough for pigs to eat, have all these carried promptly to the pigpen. You must not say it will be too big a job, for that might let out the secret that you sometimes let the weeds get large enough to endanger the plants.

A year or two ago I sold my two pigs, that were raised and fatted almost entirely on waste products from the garden, for over $60.00. Last week the butcher paid me $36.00 for two pigs, although pork was down to only 4¼ cts. per lb., dressed. Now, a great part of the time these pigs had absolutely nothing whatever but the waste from the kitchen and garden. I once gave a boy a Waterbury watch for two little pigs, and they had absolutely nothing for a good many weeks but the refuse from the gardens—mostly the refuse from our Jersey Wakefield cabbage, that we were selling every day. We just piled the leaves up around the little fellows, and almost covered them up sometimes, and they were both feed and drink. Before I knew it, the boys hadn't been carrying them any thing else—said they did not need it.

Now I have told you what we got for our pork; but I have *not* told you what we got for the *manure*. At the present time the pigs are in part of our covered tool-shed, where so much trash is given them, especially if there is a surplus, that the pen is very apt to become untidy, unless a good deal of strawy manure is constanly shoveled into the pen to keep it dry and clean. As they are located just back of the horse-stable, the manure is pitched over for them to root over; and the product is a first-class artcle of manure, rooted over so constantly that it does not have any time to heat and get fire-fanged. Our pen is so large and roomy that we can throw in a dozen loads of stable manure before it is cleaned out. When we get some new pigs we clean the pen out away down a foot or more below the surface of the ground. You see, our ground is thoroughly underdrained, not only around the barn and pigpen, but the tiles run right under said barn and pigpen, so the little pigs in winter time have a very snug bed in stable manure, down below the surface of the ground; and when we want the manure to raise the Hubbard squashes which I have been talking to you about on another page, or for any other purpose where we just want to make the crop "get up and *climb*," we go to the pigpen for our worked-over compost.

Now then: If there is any waste going on about your home or on your farm, have one or two pigs, or enough to take up the waste, any way. If you live in town, and work in a factory, have some chickens, say two of them, if there is not any more waste around your home than two will consume, and see that the chickens have every scrap that might go toward baiting rats and mice if you don't have the chickens; and if you really want to enjoy your home, work the thing down to such a fine point that even the *flies* will go off thin and hungry, and betake themselves to some neighbor's premises where flies have a better chance. Read this to your wives, and ask them if Uncle Amos is not level on the whole matter.

A NEW KIDNEY WAX BEAN.

In looking over the various seed catalogs for 1896 I was pleased to notice that the greater part of them had a new wax bean, originated by our old friend Eugene Davis, of Grand Rapids, Mich. I sent for a sample of beans, and found that it is a kidney wax bean, entirely white. When the Wardwell kidney wax first came out it was claimed it would answer for either a snap bean, green shell bean, or for a dry bean for cooking. There is one trouble, however. It is a little bit "speckled," and a good many people don't want a speckled bean for table use. This is just a notion, and I have protested that it is ridiculous that people can not have baked or boiled beans unless said beans are entirely white all over. But we had to give way to public prejudice. Well, friend Davis has got a wax bean that is *all* white, even when it is mature and dry. It is claimed, also, that it is extra productive, and the beans are extra fine and large, besides. This latter part I have not tested; but I have asked friend Davis to tell all he knows about the bean, and here is his reply.

Friend Root:—Five years ago I noticed one bean-plant in a patch of Golden Wax beans, just beginning to pod, that had a larger vine and the pods were much longer, and more of them, than the others. I stuck some stakes around the plant, and cautioned my men not to disturb the plant, as I was sure it was something different from what I had ever seen. When ripe there were thirty beans, pure white in color. The next year the increase was about a peck. Not being posted on the different kinds of beans I began to make inquiries of different seedsmen to find out whether I had something new or not. One told me that they had a bean like it once, but had lost the seed; that it was something new, and a good thing. The third year I came near losing the seed, when I sold it to the introducers, who grew a thousand bushels last year.

They should not be planted as closely as other beans. One bean in a place, four to six inches apart in the row, is close enough. EUGENE DAVIS.

Grand Rapids, Mich., Feb. 3.

There, friends, if any thing else has been wanting to convince us that friend Davis is a careful, conscientious man, we have it in the above. He has been invited to tell in print what he knows about the bean that he originated; and just notice how modest his claims are! I wish the venders of new and untried things might, a great lot of them, copy his example.

HOT-BEDS HEATED BY LIVE STEAM INSTEAD OF MANURE.

Most of our friends will remember what I have said about steam-heated hot-beds belonging to the Lakeshore Canning Co., of Conneaut, O. As there seems to be much inquiry in regard to this matter at the present time, I have asked friend Cummins to tell us how the arrangement is working to date. Below is his reply:

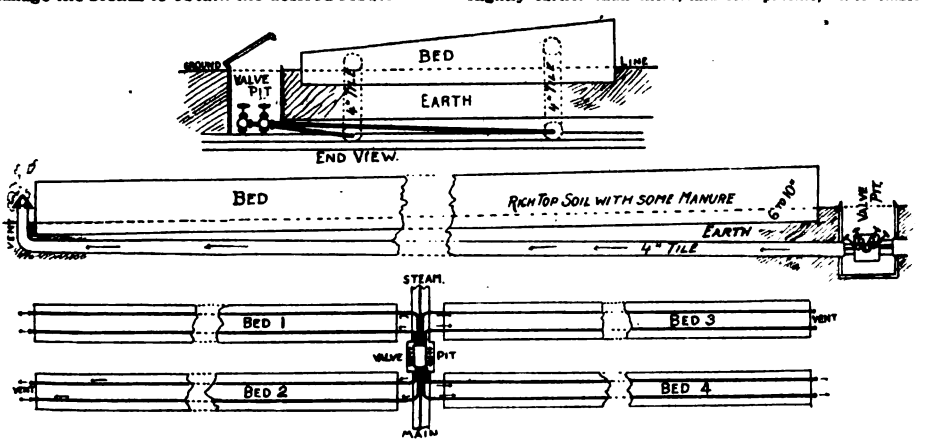
Friend Root:—Your favor of the 20th, inquiring about our steam-heated hot-beds, is at hand. The only change we have made since you were here was to take out the 2-inch tile used at first, and replace with 4-inch, which we find more satisfactory, and we think 4 inches is large enough. We have always used common drain-tile, cementing all joints; per-

haps sewer-pipe having socket joints would answer as well; but in either case the joints should be cemented. The main steam-pipe under ground must be well protected to prevent radiation; the most important point being perfect dryness of the earth where steam-mains run. We run steam-mains through continuous wooden boxes, made from pine lumber thoroughly covered with coal tar before being nailed together, the pipe being in the center of the box, the space around to be filled with some non-conductor like mineral wool.

We arrange our beds in groups of four. At the junction of each four beds we have a pit with a loose cover; in this pit is the steam-main. Eight ⅜-inch valves and pipes connect the steam-main with the eight rows of tile through the four beds. The eight valve-stems could be continued up through the pit-cover; but our way is to remove the cover, and, by kneeling down, all the valves can be reached for manipulation. We find that, ordinarily, the temperature can be maintained at the point desired only by using steam turned into the tiles for a period of from two to three hours out of each twenty-four.

The steam-valve and inlet-pipe are only ⅜ inch. A full head turned on, with a pressure on the main of about 25 pounds per sq. in., will send the steam through the length of the bed, and show a little at the open end of the 4-inch tile. The open end of the tile should be covered with a perforated hood to show when enough steam is turned on, and which will also keep vermin out of the tile when not in use.

Preferably we run steam into the beds and have them thoroughly warmed by evening, then they will go through a cold night without further attention. If they should be cold in the morning, and were then thoroughly warmed up, if the sun came out hot (as sometimes occurs), the temperature is apt to rise quicker and higher than we expect; but a little experience will soon teach a beginner how to manage the steam to obtain the desired results.



WARMING HOT-BEDS BY RUNNING LIVE STEAM THROUGH DRAIN-TILES UNDER GROUND.

We are now running fourteen beds, each 5 ft. wide by 64 ft. long. A 10 H. P. boiler supplies the steam when drawing a full supply for each bed; and as we require this heat only from two to three hours daily, it does not require much fuel. We have used these beds for several years, and nothing would tempt us to go back to the old manner of heating with manure.

We can absolutely control the temperature of the beds at all times while the air outside the beds is lower than the desired degree in the beds.

The inclosed sketch shows arrangement of our beds, grade of tile, etc. The idea of steam-heated hot-beds was conceived and developed by my two youngest sons, who had become discouraged trying to get any thing like a uniform heat from manure-beds.

D. CUMMINS.

Conneaut, O., Jan. 21.

MAULE'S EARLY THOROUGHBRED POTATO, ETC.

I have only just been informed by Prof. W. J. Green that this potato was tested also by the Ohio Experiment Station at Wooster; and in the last number of the *Ohio Farmer* we find a list of 22 kinds "in which there is most interest at present." The yields per acre are as follows:

VARIETY.	Y'ld p. acre. Central Station.	N. W. Sub-Station.	N. E. Sub-Station.
Banner	201	81	66
Carman No. 1	262	93	76
Carman No. 3	224		
Columbus	281	121	112
Clay Rose	214	78	74
Craig	211		
Early Norther	270	77	66
Early Harvest	290	82	63
Everitt's Six Weeks	202	76	74
Freeman	237	83	
Forest Rose	304	77	76
Irish Daisy	247	94	169
Koshkonong	309	108	115
Maggie Murphy	238	76	68
Maule's Thoroughbred	357		
Nebula	266	77	88
Rural New-Yorker No. 2	213	108	104
Somerset	248		
Sir William	308	115	154
Salzer's Earliest	177		
Timpee's No. 4	223	85	106
Victor Rose	244	101	62
World's Fair	266	85	95
Average of all varieties tested, including those not reported here	250	92	92

We can not give the whole of their remarks, but only extracts.

The varieties which stood above the average in all cases are Sir William, Koshkonong, Columbus, and Irish Daisy. Following closely are Forest Rose, World's Fair, Early Harvest, Carman No. 1, Nebula, Rural New-Yorker No. 2, Timpee's No. 4, Early Norther, Victor Rose, Clay Rose, and Maggie Murphy, in the order named. All the varieties named are intermediate or late, except Early Harvest, Nebula, and Early Norther. Everitt's Six Weeks, which is the same as the Early Ohio, is slightly earlier than these, and less prolific, while Salzer's Earliest, another name for Bliss Triumph, is still less productive.

BANNER.—A good intermediate white variety. It resembles Rural New-Yorker No. 2 in both plants and tubers, but is of distinct origin. CARMAN NOS 1 AND 3.—These are both valuable midseason white sorts. No. 1 seems to be more subject to blight than No 3. The latter is quite resistant, but is not exempt from the disease. No. 3 resembles the Rural New-Yorker No. 2 in tubers and foliage, but is probably more vigorous and prolific.

CRAIG.—Tested but one season. The yield was small because of susceptibility to blight. It is a vigorous grower, and no doubt prolific under favorable conditions.

EARLY NORTHER.—This may be described as an improved Early Rose, being similar to that variety in form and color, but a better cropper. It has given the best results in our various tests of any variety of its class.

EARLY HARVEST.—At present this stands at the head of the list of early white varieties. It ripens with the Early Rose. EVERITT'S SIX WEEKS.—Not distinguishable from Early Ohio. IRISH DAISY.—Too large a per cent of small tubers to be desirable, but it is one of the most prolific. MAGGIE MURPHY.—A coarse-looking pink potato, and not of good quality unless grown on sandy soil.

MAULE'S THOROUGHBRED.—It gave a high yield when grown on a small plot, and has been tested one season only. It belongs to the rose class, and seems to be very promising, but more time is needed in order to fully test its value. NEBULA.—Similar to Early Norther. SOMERSET.—A mid-season rose-colored variety of considerable promise.

SIR WILLIAM.—Some have thought that this variety has been overrated; but at the station and sub-stations it has made a record second to none. It easily ranks with the most prolific varieties, and excels most of them in table qualities. All things considered, it deserves a place near the head of the list.

WISE.—A very vigorous and prolific pink-skinned variety from Ashland County, where it has a high reputation. It has been tested here one season only, but appears to have more than ordinary merit.

Now, friends, please notice that Maule's Thoroughbred is placed in the above table away up above every thing else. Koshkonong comes next, and Sir William third, at 308 bushels per acre. The Thoroughbred is 357 bushels besides being at least *almost* as early as the Early Ohio; and it seems a little singular that they do not make more of a stir about it in their comments. I am a little surprised to see them speak of the Craig as they do, especially when the above statement does not agree with the one from C. E. Green, who has the potato in charge, given on page 822.* Six Weeks, they say, is not distinguishable from the Early Ohio. I wonder if this has been the experience generally among potato-growers. We are also a little surprised to see them speak of Salzer's Earliest as only another name for Bliss Triumph.

ANOTHER POTATO STORY.

Our good friend A. E. Manum is not only a practical and successful bee-keeper, but he likes to grow plants, and he has a special interest in raising and testing new varieties. In fact, he has been for years growing potatoes from the seed-balls. Last spring he sent me three small potatoes, and asked me to try them. On account of the boys skipping, there was a little space left right among my piece of Craigs. These three potatoes were cut to one eye, and had the same care as the Craigs. I took especial notice of them, because they were the last to yield to blight except the Craigs, and they produced enormous hills of great big fine potatoes. After the vines were dead we found we found we had something over a bushel, and wrote to friend Manum in regard to them. Below is his reply:

Friend A. I. Root:—I planted one acre and 66 rods of these potatoes, and dug from this ground 836 bushels. From one acre I got 604 bushels—601 at digging; and, since plowing the acre, 3 bushels more were thrown out by the plow, making 604 bushels from one acre, with ordinary cultivation—no *forcing* whatever. There was no manure used—simply 700 lbs. of fertilizer used on the acre, with 2 barrels of ashes. It was sod ground that had been to grass four years.

Mr. John Orvis, of Starksboro, to whom I gave six potatoes last spring, got 6¾ bushels; and a neighbor planted *one* potato, and got 5 pecks. These were grown on light sandy loam. I am anxious to learn how they behaved on your rich soil. I planted on one piece, the "66-rod" one (the whole piece measuring ¼ acre, but only 66 rods was planted to my seedling), two rows of Rural New-Yorker No. 2, and three rows of Mills' Prize, both varieties being noted as good yielders. Then the rest of the piece was planted to my seedlings, all treated alike throughout the season. The seedlings yielded double what either the others did. On another plat, same kind of soil, I planted the Carman Nos. 1 and 3; Bovee's Early, the Columbian, the Early Delaware, the Mammoth, and Craig, which I bought of you. From the pound of Craigs, I got ¾ bushels; average yield, 355 bushels per acre. The Carman No. 1 averaged 375 bushels per acre, and Carman No. 3, 400. The other varieties, about 300 bushels per acre. None came up to my seedling. I shall want to try some of Maule's Thoroughbred in the spring. A. E. MANUM.

Bristol, Vt., Nov. 5, 1895.

*On the above page (issue of Nov. 1) E. C. Green says:

I can say that we had no variety of over one hundred kinds but showed signs of blight by the middle of August; and by Sept. 1st all were dead or practically so. The Craig held out as long as any kind, but had to give up long before any frost.

We also give our readers a view of friend Manum, with his animated countenance as he picks up his potatoes at digging-time.

MANUM'S "ENORMOUS" POTATO—ONE BUSHEL TO SEVEN HILLS.

In reading over the letters from enthusiastic potato-growers, and hearing about their successes, I am reminded of a little talk with friend Gault, the originator of the raspberry bearing his name He also for many years has had a hobby of growing potatoes from seed-balls. While I was looking over his grounds one day I suggested that it took a good many years of hard labor to bring out a new potato, and sometimes a grower does not get very much reward for his work after all. He said it reminded him of a little story he once heard. A prisoner was receiving a severe reprimand from the judge. After it was ended he looked up meekly and inquired of the judge if he himself didn't ever get drunk.

"Get drunk? Why, to be sure, not."

"What! never in your life?"

"I get drunk! Why, what do you mean? To be *sure*, I never did. What are you thinking about?"

"Well, judge, all I have got to say is that you have missed lots of fun—that's all."

Even if my neighbor *was* obliged to admit that he had not received very much from his beautiful new varieties with their strange peculiar individualities, he had very much enjoyment; and one who had never experienced any such work, had, according to the verdict of the poor inebriate, missed "lots of fun." The difference between getting drunk, and raising potatoes, is, one brings only sorrow and shame;

but the development of a new variety, that may possibly be of benefit to the human family, never makes a man *worse*, even if it does not amount to much. By the way, friend Gault worked quite a while in getting a potato that would keep very late in the season without sprouting or wilting, and was rewarded by being able to exhibit at the county fair some potatoes in very good condition that were *two years old*. For prices and further particulars concerning Manum's new potato, the "Enormous," write to A. E. Manum, Bristol, Addison Co., Vt.

One thing strikes me right here that seems a little funny: Manum's potato, under *his* care, resisted the blight better than any other (Craig included) of many kinds tried. The new Craig, under *my* care, resisted the blight better than any other, *including Manum's;* and quite a few other potato-growers have reported the same experience, *theirs* being ahead. Here is where our experiment stations should come in and straighten us all up.

In regard to quality, Manum thinks his "Enormous" almost equal to the Freeman. Mrs. Root has been cooking so many new and wonderful potatoes that she has become pretty nearly tired out in the business; and she and I have never yet found any of the large-yielding potatoes, especially the late ones, that would come up to the Freeman and New Queen in *quality*. Many have been sent me, with the claim that I would find them so; but with our method of cooking they are quite a good way behind. The Craig, with us, averages about as well as any of the other large late potatoes; but when the Freeman and Queen are placed on the table, the rest are away behind, unless it is the old Snowflake. Mrs. Root complains quite a little that many of the good yielders cook all to pieces in spite of precaution.

GARDENING FOR FEBRUARY 15.

Now is the time to plant a great variety of stuff in the greenhouse or in cold-frames. It is a little early to start wax beans unless you have a greenhouse or hot-bed that can be well protected in case of zero weather. But it is just the time to start beets, Wakefield and Early Summer cabbage, early forcing carrots, Snowball cauliflower, White Plume and Self-blanching celery, water-cress, pepper-grass, lettuce, onion seed for plants, parsley, American Wonder peas, if you have room; Scarlet Globe and Early Frame radishes, spinach, and last, but not least, tomatoes. If you want to raise extra early tomatoes, a good lot of seed wants to go in right now; and if you can not do any better, sow the seed in flats or old tin pans set in the kitchen window. Under your beds in the greenhouse—that is, if there is a place under them—start asparagus, and pie-plant for forcing. Sort over your onions, and pick out all the sprouted and soft ones. Pack them in close together with rich dirt for early bunch onions. Of course, these will not make bulbs managed in this way, but they will make long green shoots that will sell in any grocery or meat-market for a nickel for a quarter or a third of a pound.

Watch for a time when the frost is out of the ground, and dig horseradish roots. We are having quite a good trade on horseradish by leaving it at the meat-markets. When people come to buy meat they will see the horseradish freshly put in neat clean bottles, and want it. We put it up in 1-lb. honey-bottles, retailing at 15 cts. If the bottle is returned, a nickel is refunded for that. With a grinder run by steam we can grind up the radish, put it into bottles, furnish the vinegar, horseradish, and all, at a cost of only about 3 or 4 cts. a bottle. In the middle of the winter we pay from 3 to 6 cts. per lb. for roots, washed and scraped ready for the grinder.

During the last of the month you can sow your peas in the open air if the frost gets out and the weather is suitable. We have never failed in getting a crop from peas planted outdoors in February; the same way with onion-sets, but it is a little more risky. The very first onions are the Egyptian; but they are not first-class, and do not make a handsome bulb. The first to make a nice bulb is the American Pearl, from sets planted last fall. If you neglected to do this, the next best thing is to plant the sets now. Plant them outdoors as soon as you can get the ground in order; but for extra early, to be sold at good prices, put them in a greenhouse or hot-bed. If you have no hot-bed or greenhouse, put them in a cold-frame—that is, a bed made up of nice rich fine soil to be covered with glass sashes whenever it freezes. This will get them along quite a bit ahead of those outdoors.

Now, if you are going to raise plants for sale among your neighbors (and if you handle glass this is the great specialty), be sure to put in plenty of seed for tomatoes, cabbage, and celery. If you have too many plants in the seed-bed, there is not very much loss; but if you have only a few, there may be a tremendous loss. Please remember the time last spring when people were ready to give 25 cts. a dozen for tomato-plants, when none of us had any. We are going to plant, for extra early, Fordhook, Beauty, and Dwarf Champion.

THE EARLIEST POTATO.

In our last issue we were persuaded to put the White Bliss Triumph ahead of the Early Ohio in point of earliness. On our own grounds we never found any thing any earlier than the Early Ohio, not even the Ohio Junior. But almost every seedsman has something to offer that he claims to be earlier than the Early Ohio. As quite a number seemed to agree in regard to the Bliss Triumph, I placed it as I did. Knowing that one of our prominent potato-growers had grown the Bliss Triumph, I asked him to give me briefly his experience with it. Here it is:

Mr. Root:—In point of earliness, Bliss Triumph matures with Early Ohio. It is no earlier. The yield for an extra-early sort is good, also quality; but I find that the Early Ohio will grow more marketable size per acre. For an extra-early garden variety, the Ohio and Ohio Junior are hard to beat; but they do not yield with Irish Cobbler.

Fishers, N. Y., Feb. 1. ARTHUR G. ALDRIDGE.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

EUGENE DAVIS' NEW KIDNEY WAX BEAN.

At the time I wrote him, he was all sold out but about three pecks. I secured that many, and offer them for sale while they last, at the following prices: Sample packet, 5 cts.; ½ pint, 20 cts.; pint, 35 cts.; quart, 60 cts.; ½ peck, $2.00; peck, $3.75.

AMERICAN PEARL AND PRIZETAKER ONION-SETS.

We have a splendid stock of American Pearl onion-sets for spring planting, which we offer for immediate orders as follows: Quart, 20 cts.; peck, $1.25; bushel, $4.00. If wanted by mail, add 10c per quart extra for postage.

We can furnish the Prizetaker onion-sets at the same price as the American Pearl mentioned above. At present we are not prepared to say which will be better—putting out Prizetaker onion-sets or transplanting Prizetaker plants. The sets have this advantage: They can be planted out in the open ground as soon as the frost is out and the land is

ready to plant. The onion-plants, however, especially if they are grown in a greenhouse or hot-bed, can not be safely put in the open air until a month or more later.

SECOND-SIZE POTATOES.

At the very low prices we have put on these, we are all sold out except a few Early Ohios, a few of the new Craig, and a few of Lee's Favorite.

PRICES ON MANUM'S "ENORMOUS" POTATO.

We can furnish these potatoe- at Manum's prices; viz., 1 lb., by mail, 40 cts.; 3 lbs., $1 00; by freight or express, ½ peck, 40 cts.; peck, 75 cts.; ½ bushel, $1.25; bushel, $2.00; barrel, $4.50. The potatoes will be shipped from Medina or from Bristol, Vt., as may be most convenient.

SEED POTATOES FOR SOUTHERN SHIPMENT.

With the practical experience we have had in the matter (and some burned fingers in the bargain) we will undertake from this date onward to ship all potatoes going south of the State of Ohio, at our own risk from frost. With the very efficient aid the Weather Bureau now furnishes, and with good stout paper put all around the potatoes, we think we can get them over the frost-line before the frost catches them—at least, we are going to undertake it, therefore send in your orders, whether it be for one pound or for ten barrels.

SECOND-SIZE CRAIG POTATOES.

The boys just now report that it is a very hard matter to find any more second-size Craigs, from the fact that they all run large or very large. Now I will tell you what we will do: During this season of potatoes in such great plenty it seems to be the fashion to pick out the best and nicest shaped ones for seed; therefore in the future all orders for second-size Craigs will be filled with bad-shaped ones—those bruised perhaps a little in digging, or any of them that are not so smooth and handsome as some of the others. For planting, these seconds will be practically just as good as any other, but by running them off at half price we will have left only the smooth, handsome, good-sized ones for those who order and pay for a strictly No. 1. This will bring them down to about the ordinary price of good seed potatoes; namely, $1.25 per bushel, or $3.00 a barrel.

THE IRISH DAISY POTATO.

Mr. Wilbur Fenn, of Tallmadge, O., is well known to many of our readers as the man who succeeds so well with potatoes planted *late*, and gives us such beautiful-keeping Monroe Seedlings because they were grown and dug the very last thing before frost. Well, Mr. Fenn informs me that he has about 500 bushels of the Irish Daisy, so well known before the potato world that I hardly need describe it. These potatoes are offered at the following very low prices, until further notice: 1 lb., by mail, 12 cts.; one peck, by freight or express, 20 cts.; ½ bushel, 35 cts.; bushel, 60 cts.; barrel, $1.50. You can send your orders direct to us or to Mr. Fenn, as given above, as you choose. If you want to see what a magnificent bargain we are giving you on these Irish Daisies, just look at the prices on them in the catalogs.

Let me call attention once more to Mr. Fenn's *Monroe Seedling* potatoes. These (for this season) were planted the day after the Fourth of July. The consequence is, they are really "second crop," like the White Bliss Triumph, except that the seed was raised in exactly the same way the *year before*. They will keep hard and firm long after other potatoes have sprouted or become soft, and they also have a much stronger tendency to send up only one strong shoot instead of sprouting all over, as the early-grown potatoes do. His late-grown Monroe Seedlings have quite a reputation At the very low prices we have already put on them it ought to give them a good sale. Peck, 20 cts.; ½ bushel, 30 cts.; bushel, 50 cts.; barrel, only $1.25.

THE WHITE BLISS TRIUMPH POTATOES.

In our last issue, in speaking of these, second crop *extra early* potatoes, I omitted to say that we had made an arrangement so we could ship them from here or from Goldsboro, N. C., at the prices mentioned. In fact, we have just received a barrel, packed in cotton seed. They came in excellent order, right in the middle of winter. Friend Swinson makes the following claim, aside from the fact that these potatoes are second crop and extra early: viz.:

> These are grown from SELECTED SEED FOR TWO YEARS, and produced by vines upon which no POTATO-BUGS were allowed to live, develop, and go down to deposit their eggs in the potatoes, ready to come up in the spring, with the young potatoes, to devour them before they get large enough to treat. This of itself is of paramount value to planters whose land is not already infested with these pests.

In regard to immediate shipment, friend Swinson writes:

> I can ship anywhere south, from now on, with safety; but north of here, till April 1st, add $1.00 for each barrel, to be shipped at my risk, and I will pack as I did yours, and ship anywhere.

SWEET CORN FOR SOWING FOR FODDER, ETC.

Until the stock is exhausted, we will furnish Stowell's Evergreen and Mammoth sweet corn, grown in 1894, at the low price of only $1.00 per bushel. The greater part of it will germinate; and for sowing broadcast for feed, perhaps it will do almost as well as any corn.

PIE-PLANT IN WINTER TIME.

When Mrs. Harrison's letter in another column came to hand, it made me think that I saw some pie-plant across the way, right over the drain-tiles that carry the exhaust steam, looking as if it had a great notion to start up and grow. A frame made on purpose to hold six ordinary hot-bed sash was se over the plants, and the glass put on; and in just about a week I had one of my "pleasant surprises" by seeing the great leaves doubling themselves up in the vain endeavor to push the glass sashes out of their way, and we are now furnishing material for "early pies," grown already in *the year 1896*.

PARSNIP SEED AT A VERY LOW PRICE.

In the fall of 1894 we harvested several bushels of the nicest parsnip seed I ever saw. In fact, the stalks were away up above one's head on our rich market-gardening ground, and the seeds were remarkably large and plump. Now, we have found by practical test that parsnip seed of our own raising grows just about as well when it is two years old as when it is only one year old. But I should not want to sell anybody two-year-old seed without telling him of it, and making the price accordingly. Therefore we will furnish this 1894 seed, while it lasts, at the low price of only 10 cts. per lb. If wanted by mail, add 9 cts. extra for postage and packing. If you are in the habit of drilling your parsnips in pretty thickly, with the idea of thinning them out, this two-year-old seed will probably answer just as well as any.

HUBBARD SQUASH SEED, ETC.

We have just purchased several bushels of extra nice Hubbard squash seed from one of our bee-keeping friends. The squashes were raised from seed furnished by us last season, and the grower pronounces them a very nice strain of Hubbard squashes. In consequence of the short cut from the grower to the dealer, without any middleman, we are enabled to furnish them at the very low price of 35 cts. per lb., or five pounds or more at 30 cts. per lb. Hubbard squashes are now worth about $20.00 per ton in the market, and for ever so many years past the demand in the month of February has been away beyond the supply. Successful growers claim they can be raised at a profit for $5.00 per ton; but if you get $15, $20, or $25 they are an excellent thing to raise. By following the directions given in our little book, "Gregory on Squashes," you can keep them until February, almost without loss. If in spite of you some of them spoil on your hands you can easily dispose of the seeds—that is if you are a reliable man, and we take it for granted you are. By the way, if you have never read the little book, Gregory on Squashes, you ought to have it. T. B. Terry says it is one of the first books that started up his enthusiasm on the subject of agriculture. I have read it a good many times; but even now it does me good, and gives me enthusiasm to read it again. We can send it to you by mail for 25 cents.

ALSIKE CLOVER—WHEN AND HOW TO SOW THE SEED.

From now on until the middle of March is the time to sow the seed. Watch your chances; and when you see the ground freezing in the morning, so that it is opened up full of holes or cells like the

cells in a honey-comb, get at it quick, and have your seed dropped into these openings. If the sun comes out an hour or two later, and causes the ground to thaw out and settle over your seed, you have got it exactly, and your stand will be almost a ure thing.

SPECIAL NOTICES FROM BUSINESS MANAGER

CHEAP SECTIONS.

Of the sections offered for sale from our Chicago branch in last issue, the cream, or second quality, are all sold; but we can still supply the better quality. We have also a large stock of triangular top-bar frames, in the stock taken of Newman, which we offer at $1.00 per 100; 300 for $2.70; 500 for $4.00; 1000 for $7.00, as long as they last.

HONEY, COMB AND EXTRACTED.

We are still prepared to furnish those in need of choice honey at the following prices: Choice alfalfa comb honey at 15 cts. per pound. Lots of 9 cases or over at 14c. Choice alfalfa or California extracted, in 60-lb. cans, 2 in a case, at 7½c; 2 cases or over, at 7c. Willow-herb, and clover and basswood mixed, at ½c per lb. extra in 60-lb. cans. Alfalfa in 1-gallon cans, 6 in a case, $6.00 per case; 3 cases, $16.50; 5 cases, $25.00.

MAPLE SUGAR AND SYRUP.

The season for maple sugar and syrup is at hand, and we expect to supply it as usual. We have secured a few gallons of new syrup already. We still have some choice of 1895 make, at $1.10 per gallon; 10-gallon lots at $1.00. Until the new is more plentiful, price will be 15c per gallon more than the old. We have no sugar as yet to offer, but will book orders for delivery as soon as it comes in. Price for choice, 10c per lb. No. 2, 9c; No. 3, 8c; 50 lb. lots, ½c less; barrel lots, 1c per lb. less.

OUR CATALOG FOR 1896.

We have had so much printing to do for other parties that we are behind on our own, and have not been able yet to send a copy of our catalog to our subscribers. We expect to do so during the next two weeks; and a few weeks later you will also receive a catalog of Tools and Household Specialties, which is now nearing completion. It will contain over 300 illustrations, and we trust it will be of great assistance to you in buying your home supplies.

REDUCED PRICES ON SECTIONS, ETC.

Because of the close times, and the desire on the part of buyers everywhere to save a few cents whenever it is possible, there is a tendency on the part of some of our customers to invest in an inferior grade of goods because they are offered at lower prices than we ask for our superior extra-polished sections. Having a large stock of sections and an almost unlimited supply of lumber to make more, we have decided to offer the following special prices:

	1000	2000	3000	5000	10,000
No. 1 white extra-polished	$2 75	5 00	7 20	12 00	22 50
Cream, or No. 2 "	2 25	4 20	6 00	10 00	18 50

No change in prices for less than 1000.
Any of the Dovetailed hives listed in our catalog.
In lots of 10, deduct 10c per hive.
In " 25, " 15c "
In " 50, " 20c "
In " 100, " 25c "
No change in price for less than 10 hives.

If in need of these goods we confidently look for your orders, believing that a comparison of our goods with any others will show the superiority of the Root goods.

SECOND-HAND FOUNDATION-MILLS.

We have quite a list of second-hand foundation-mills to offer, and most of them are a bargain at the price. If you are interested, and will write, telling us what grade of foundation you want to make, we shall be pleased to submit samples. We have at this date the following:

Six-inch hex., No 1467. Just right for thin foundation. Almost as good as new. Price $12.00.

Six-inch hex., No. 1521. All right for thin surplus foundation, and in good order, but comes from the rolls a little hard. Price $6.00.

Six-inch hex., P. P. Vandervort. Price $9.00. A good mill for the money.

Six-inch hex., Q. Q. Vandervort. Price $5.00. This has several cells bruised which leaves a streak in the foundation; otherwise it does good work.

Ten-inch round cell, old style, M. M. Price $9.00. This mill was made some time ago, and is not of course equal to mills we are making now, but it will answer nicely for heavy foundation.

Ten-inch round cell, old style, N. N. Price $10.00. Similar to the preceding but in better condition.

Ten-inch Pelham mill. Price $8.00. This is also suitable for heavy foundation. Deep walls with thin base.

Kind Words From Our Customers.

The R. & E. C. Porter bee-escape clears the super of bees so quickly and perfectly and easily that it makes the taking-off of honey a pleasure instead of a dread, as in former years. G. M. DOOLITTLE.
Borodino, N. Y., Jan. 18.

STRAWBERRY-PLANTS ALL THE WAY TO TEXAS.

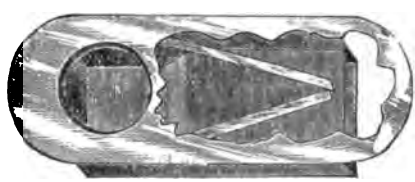
The small order of strawberry-plants you sent us a short time ago are doing well, and I want your other varieties to test here. Your plants grow better than those I got from other growers.
La Porte, Texas. H. W. THOMPSON.

A KIND-WORD FROM ONE OF OUR JUVENILES.

Dear Uncle Amos:—I want to thank you for keeping such nice books for sale. My papa got me one last spring called "Bible Pictures." He gave it to me on my birthday. I was eight years old on Easter Sunday. I like my book very much, and I can tell something about almost every picture, and never get tired of it. I want to thank you too for GLEANINGS, for my papa has become a much better man since he has been reading it, and has quit using tobacco.

We have 59 stands of bees. They are wintering well. My sister and I watch them in swarming-time, and papa gives a nickel for every swarm we see come out. We give the money to the Sunday-school. I do not like bees, because it makes me sick when they sting me; but I do like honey. I wish you could visit us and go with us to Sunday-school.
CHRISTINE SMITH.

Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees *inside* the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape,** and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or $2.25 per doz. As in the past, this escape is manufactured by the Porters, but THE A. I. ROOT CO. are now the exclusive selling agents for this country. Order of your dealer or of

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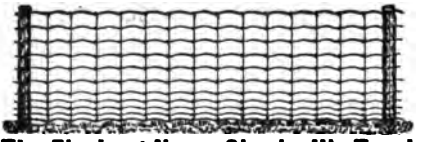

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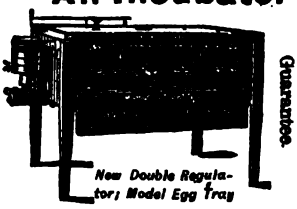

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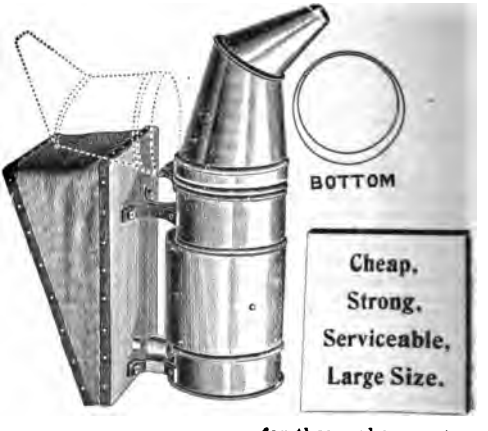

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Amityville, N. Y., Oct. 15.

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THE A. I. ROOT COMPANY, MEDINA, OHIO.

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VOL. XXIV. MARCH 1. 1896. NO. 5.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS

The A. I. ROOT CO.
MEDINA · OHIO ·

Murray-Heiss Cleveland O

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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A cyclopedia of every thing pertaining to the care of the honey-bee. By A. I. ROOT, with large additions by E. R. ROOT. This edition has been greatly revised and enlarged, so that it now contains nearly 475 double-column pages, octavo size, besides being beautifully illustrated by over 300 original engravings, many of them full page.

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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

Vol. XXIV. MAR. 1, 1896. No. 5.

STRAY STRAWS FROM DR. C. C. MILLER.

A MUSEUM of articles pertaining to bee-keeping has been founded in Danzig—the first of the kind in Germany.

M. S. THIBAUT, editor *Le Progres Apicole*, says honey is used in the manufacture of all the best toilet soaps.

F. GREINER speaks on p. 143 as though an egg in a cell was never moved; but we are told that its position is changed every 24 hours.

I NEVER WAS FED by the ravens, but lately I was fed, and well fed, at Ravenswood, at the domicil of the genial editor of *American Bee Journal*.

"UNLESS AT LEAST four or five colonies in the apiary have foul brood, I should not attempt to cure it save by burning," says Doolittle, in *A. B. J.*

CARBONYLE is spoken of very highly in the French journals as a hive paint, although bees can't be put in the hive for a long time after it's painted. Now, what's carbonyle?

THE INITIALS "A. B. J." don't stand for All Bug Juice, nor for A Boot Jack, Andy's Big Jumble, Adieu! Bald Jennie, Any Body's Jaw, A Bad Job, Active Boy Joe, Aunt Betsy's Jig, nor A Beer Jug, but just plain *American Bee Journal*.

I'VE BEEN ANXIOUS for a genuine sample of sweet-clover honey. I got some from Editor York that's reliable. Smells distinctly like sweet-clover seed. I didn't like it much at first, but it grows on acquaintance. I'd like a crop of it.

ELEVEN-YEAR-OLD QUEEN. J. G. A. Wallace reports, in *A. B. J.*, that he put into winter quarters a queen more than 11 years old; kept always in the same hive—never swarmed; right wing clipped angling, so he thinks there can be no mistake.

NORMALLY, no bee less than two weeks old works in the field, and no bee more than three weeks old does housework; but if necessary a bee five days old can forage, and it can tend baby and build comb when more than six months old.

W. H. YOUNG shipped extracted linden honey to a Chicago commission house, as he relates in *A. B. J.*; and the returns, after deducting for shipping-cans, left him about an even 3½ cents a pound. Better peddle around home at 5 cents. [Yes, indeed.—ED.]

LINDENS from cuttings! Why didn't you say so before? Of course, A. I. will try it. [They can be produced in that way; but it is cheaper to grow them from seed, so the nurserymen say; but what you do get from cuttings are better varieties.—A. I. R.]

WHEN TALKING about the danger of missing queen-cells in cutting them out, bear in mind that it makes a big difference whether you cut out after natural swarming or after removal of queen without swarming. In the latter case the cells are much harder to find.

THE BEST SURPLUS arrangement is asked for in the question-box of *A. B. J.* T supers have a majority of votes, and wide frames come in second. Section-holders have one vote. [Now, doctor, you needn't chuckle over me, for those sponsors happen to be nearly all T-super men. Eh?—ED.]

PERSISTENT DIARRHEA. Here's a cure taken from *Le Progres Apicole:* Boil bran in water 20 minutes, and strain through a fine cloth. Sweeten the liquid with honey, a tablespoonful to a pint, and boil ten minutes. Use as a table drink. [I should say that dose would be the very thing that would make it worse.—ED.]

IF WAX affects the flavor of honey in a few minutes when hot, why may it not affect it when cold, if left long enough in comb that's old enough? [But it doesn't; at least, I never heard of it. Hot wax, we know, will give off its flavor just as the hot beans give off that horrible smell while cooking.—ED.]

RUNDSCHAU is the title of a new department in *Bienen-Vater*, conducted by Alois Alfonsus, who will *schau rund* and tell what's going on in all parts of the world of bee-keeping. He

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says the latest numbers of American bee-journals bring little of interest. [Perhaps to him; but some of our German friends do not agree.—ED.]

C. DAVENPORT suggests the idea, in *A. B. J.*, that, while it is a good thing to have an apiary protected from the winds, too much protection by high hills may be worse than none. It's so warm in the immediate vicinity that they fly out, but get chilled when they get out into "the cold, cold world."

HERR LEHZEN, editor *Centralblatt*, powdered the outer bees of a cluster that hung below the combs in winter, and in the course of 12 days all the powdered bees had worked their way into the cluster; so he concludes bees shift their position, even in severe freezing weather. [A good experiment, and it helps to prove what we have believed.—ED.]

TWO QUESTIONS. 1. Of what value is sweet clover as a forage-plant? [Much more value than the average farmer is aware of.—ED.]

2. Of what value is alfalfa as a honey-plant east of the Mississippi? [Not nearly so much east as west of the river. On this side, the climate and soil are generally not as favorable. —ED.]

A. I. ROOT, p. 150, advises for the chickens a ragout of cull beans, etc. Nice for the chickens, but rough on the people in the house—smells so. I *know*, you know. [Yes, and the smell comes up from the cook-room in the basement clear up into the office on the top floor. Lately they have been cooked outdoors, a steam-pipe connecting with the cooker.—ED.]

THE GERMANS know a lot about bees; but they talk queerly. The queen (der Weisel) is "he," and the drone (die Drone) is "she." [An old German near us, in praising the skill of his frau, used to say, "Mine vife, he makes fine molasses—yes, he does." Of course, we bought the molasses. Yes, the grammatical gender in the German language is somewhat mixed, according to our ways of speaking.—ED.]

M. BERTRAND, editor of *Revue*, says: "We have the conviction that the population of our hives often reaches the number of 70,000 or 80,000, and sometimes more. [That would mean fifteen or sixteen pounds in the weight of the bees alone. The largest swarm I ever weighed, and it was a whopper, was seven pounds. Allowing three pounds for the bees left at home, this would make the colony ten pounds. Say, friend B., your colonies must be big ones.—ED.]

SKYLARK, p. 133, objects to my using acid to cleanse *cold* wax. I want to explain here why I said so. Some people wouldn't condescend to explain. They would treat Skylark with silent contempt. I'm not that kind. It's better to have a full explanation. Well, the reason I spoke of using acid with cold wax was simply and solely because I didn't know any better. [Would there were more doctors, editors, and laymen who would thus condescend to explain!—ED.]

EMPTYING HONEY from five-gallon cans into smaller receptacles is thus given by S. E. Miller in *Progressive:* Set can on table; place a smooth piece of section over the mouth of the can, and hold it tight there; lay the can on one side so it will project four or five inches over edge of table; slide section up like a molasses-gate while an assistant holds under a vessel to be filled; then slide back to stop the flow.

THE CAPACITY of a hive is measured how? by the number of cubic inches contained inside the hive-body, or inside the frames, or by the square inches of comb surface? [It is measured all three ways; but the last mentioned is evidently the best for actual comparison. For instance, the cubic capacity of one large hive with one set of brood-frames might be just the same as one having three sets of frames; but, obviously, there would be more *comb surface*, i. e., breeding-room, in the hive with the single set of frames.—ED.]

PRICE OF CALIFORNIA HONEY.

The *American Bee Journal* gives us this information by W. D. French, of Foster, Cal.:

I am now informed that the price of honey in San Diego has declined, and they are paying 2½ cents per pound in 60-pound cans, cased. The reason of the recent decline, as stated, was because a certain apiarist had started for town with his load.

An ever watchful eye
Is kept by those who buy;
So when a "soup" is sighted,
They all are much delighted—
Because they're "in the swim."

Now, I question this statement—in fact, deny it in toto. I do not question Mr. French's veracity, for he is a Southern Californian; but I question the veracity of his informant, who may be a Lower California greaser for all I know. I also question the good sense of Mr. French in rushing into print and scattering such rumors broadcast over the land. Does he not know that he is depressing the price of honey by his insane charges against the dealers? Does he not know that, as soon as any dealer on this coast sees this statement, he will say, "Honey is only 2½ cents in San Diego—we can give no more"? When such an article appears in an influential journal, and is read in Chicago, Kansas City, St. Louis, New York,

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Boston, Philadelphia, will it not have a powerful influence on the price of honey, especially as San Diego is known to be one of the great bases of supply?

Now, Bro. French, I know you and all bee-keepers on this coast are suffering from the low price of honey and the hard times. We are all in the same boat, and will sink or swim together. But there are harder trials than all these to bear. Take my own case, for example. I am a bee-keeper. I am suffering from all the "stings and arrows of outrageous fortune" that have penetrated your inner man. But besides all these, I have other ills to bear. I have a certain lady's bees to keep on shares. She gets all the honey and swarms, and I get all the work. This division of the profits was made because this lady is very dear to me, and I am perfectly satisfied with the contracts. But I also "bee-keep" her big dog to watch me and see that I carry out the contract to the letter. I don't growl at this, either. But here is the outrage—for his board, clothes, washing, and ironing, I get only 5 per cent of his bark! That is what I kick about. Don't you think, Bro. French, I should have 50 per cent of the bark, or do like some of the commission men—*keep the whole dog?*

PERCOLATED VS. BOILED SYRUP FOR FEEDING BEES.

Query 2.—Of late a great deal has been said about feeding bees sugar and water, equal quantities (for winter stores or to keep them from starving), by means of the crock-and-plate method or some kind of percolating-feeder. Do you think this is better or worse than the plan of boiling syrup to feed?—MINN.

P. H. Elwood.—Worse, much worse.

Dr. C. C. Miller.—Ever so much better.

I cut these questions and answers from the *American Bee Journal*. It will be seen that the answer of Dr. Miller flatly contradicts that of P. H. Elwood. Now, why is this? Here are two eminent apiarists—so high up the ladder of apiculture that they can almost reach me with their hands, who are just as far divided—just as directly opposed to each other as yes and no. If you ask a dozen teamsters how to feed a horse, there will be but a slight difference, if any at all, among them. The dairymen will differ no more about feeding cows. The professional poultry-breeders are likewise unanimous as to the best manner of feeding domestic fowls. In these pursuits it is all plain sailing, because there is no dispute as to feeding the stock, nor of conducting the business connected therewith to a complete success. But when we get among the bees we get into the fog and grope about like blind men. One cries out, "I have found the path; follow me;" another, "No, it is not that way at all; I have found the big road; come on, boys, this way." By the time they nearly all turn to follow him, his "big road" gives out—gets lost in the fog—and they get scattered out again. Anon there is another cry in a different direction, and the flood tide rolls backward until it wastes its energies in the wide ocean, or breaks upon some rockbound shore.

Now, why should there be such a diversity of opinion as to the feeding of bees? Well, Mr. Editor, I will just tell you the truth—though I am not used to it. We know nothing about bees. Samson, when he took the black-sage honey out of the carcass of the lion, knew just as much about bees as was known up to fifty years ago. It is not fifty years since the "king-bee" died. In fact, he is not all dead yet, but is alive and kicking in many lands and in many parts of our own land.

THE WILD BUCKWHEAT OF CALIFORNIA.

I read with great interest the article of Mr. A. Norton, on "wild buckwheat;" also the accounts of Rambler and others of the large yields in the middle and northern counties of Southern California. In this southern end of the State it yields nothing but pollen, and the bees do not visit it often, even for that—preferring other flowers. But I have had many letters from the middle of the State, from friends who have had large yields from "wild buckwheat." But I could never understand why *our* buckwheat did not yield any honey. It may have come up out of the ground like the young lady's beans—wrong end up, and we failed to reverse it. I am not going to tell friend Norton the genus, species, and family of *our* buckwheat. He may find that out if he can. I don't believe, anyhow, in parading family matters before the public.

THE WORLD OF BEEDOM IN COMMOTION.

Controversy, contradiction, and direct opposition are rampant in the apicultural universe. We are on the verge of a great crisis—of actual war. It is not only one great question that divides us, but many. The most dangerous to our peace are "large vs. small hives;" "three vs. five banders;" "breeding out the swarming habit;" "breeding out the stinging habit," and a hundred others of minor importance. On all these questions bee-keepers are divided. War—open war—is inevitable unless there is a court of final resort created whose decision no one will dare to dispute or disobey. This court will consist of a chief justice and two associates, and will hold a term of court every three months or oftener, if business requires it. Now, this is the way that court would riddle out those knotty questions.

"The Supreme Court in Bee-keeping handed down the following opinion to day. It was read in a clear, sonorous, ringing voice by Chief Justice Skylark:

"The plaintiff in this case is right in demanding a larger hive, because a small one won't hold half his bees and honey. On the other hand, the defendant is also right in claiming a

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small hive, because there is not enough honey in his country to grease a buckwheat cake. Both prisoners are therefore sentenced to keep their bees in the hive they prefer, and each of them to pay the full expenses of the court. This court doesn't propose to sit here for nothing.

"By the courts.

"SKYLARK, C. J."

Now, Mr. Editor, this is short, sweet, and decisive, and would settle all controversies without appealing to arms.

BOUNTIFUL RAINS IN CALIFORNIA.

We have had bountiful rains; and the prospects for a honey crop, which before were dark and gloomy, are now as bright as they could be at this time of year. But we are not yet out of the woods. It is the *late* rains, in March and April—good soaking rains—that give us the honey. We have now a good foundation for a honey crop, and if we get the late rains we shall make you fellows in the East howl with envy. *You can't help it!*

Echoes this time will treat mostly of the California Bee-keepers' Exchange. We wish to echo it around the world that the Exchange is fully organized for business.

It has taken considerable committee work, various meetings and conferences, and there is a world of work to do in the future. But the Exchange is in the hands of persons whose motto is, "We propose to fight it out on this line if it takes all summer and the next summer."

The Exchange is organized under the co-operative State law of 1895. It is not, strictly speaking, a joint-stock company wherein a few can buy up shares and run the organization for their own benefit, but every member who signs the by-laws and contract, and pays $1.00, and for the first year an assessment of 25 cts. per month, becomes entitled to all rights and privileges, every member having an equal voice in the management.

Persons seeking membership must be honey-producers, and must agree to market their honey through the Exchange; but there is a provision for the sale of honey in the home market.

In addition to the Central Exchange, located in Los Angeles, county exchanges will be organized; and where the counties are large, and the bee-keepers scattered, district exchanges will be organized. The district or township exchanges report to the county exchange, and the county to the Central. The aim is to have the bee-keepers in touch with each other through the various organizations. This is virtually the plan adopted, and working so successfully in the fruit exchanges.

THE BENEFITS TO BE DERIVED.

The output of the honey crop will be known step by step as the season advances.

Supplies can be purchased in car lots, and at wholesale rates.

Unjust tare on honey packages can be regulated.

Uniform freight rates can be secured.

The seal of the Exchange will give the purchaser confidence in the quality of the honey.

Honey can be sold as per demand, in either large or small packages.

Honey can be put upon the market in a systematic manner, not overstocking one market and leaving another bare.

A more healthful tone in the price is sure to result.

Adulterators will flee with an army of 1000 united California bee-keepers after them.

There are several other benefits, but the above is enough for this time.

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C. H. Clayton,	" "	Los Angeles	"
E. A. Honey,	" "	Orange	"
J. La Rue,	" "	Riverside,	
J. C. McCubbin,	" "	Central Cal.	

F. S. Pond, Director at large.

J. H. Martin, " " "

Treasurer, Los Angeles National Bank.

Secretary and General Manager, H. H. Youngken.

The directors, with unanimous consent, wisely selected a manager outside the ranks of the fraternity. Mr. Youngken is a thorough business man, a skillful book-keeper, banker, and manager of a building and loan association, and comes with the best of recommendations.

At the age of three days the Exchange numbered about 70 members.

At this writing, county and district organizations are being formed.

Hon. J. M. Hambaugh, late of Illinois, now a resident of Escondido, Cal., presided at one of our sessions.

Prof. A. J. Cook, Pres. of the State Association, was unable to be present. He was quarantined as nurse to his son Bert, who suffered from a severe attack of scarlet fever.

We had one attorney bee-keeper to perform the kicking. We all thanked Heaven there was only one.

Three days were consumed in organizing. The bee-men were bound to stay with it, even if it took a month.

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The second evening the boys became tired, and Messrs. Herron, Wilder, Kubias (McCubbin), and Squires went to the theater. The Rambler went along to keep the boys quiet. When we returned they had the effrontery to report that they just followed the Rambler to take care of *him*.

Please note that the Rambler (J. H. M.) is put down as director at large. That means that he can spread himself over the whole State.

Note again that we have Mr. Honey as director—nothing like having a sweet and appropriate name in an organization.

Mr. A. H. Naftzger, President of the Southern California Fruit Exchanges and the *Overland Fruit Dispatch*, gave the convention a short address upon methods of organization, etc.

Mr. T. H. B. Chamblin, organizer, and termed the "Father of the Fruit Exchanges," attended all of the sessions, and gave valuable advice upon lines of organization.

SLOVENLINESS IN PUTTING UP COMB HONEY.

A DESERVED SCORING FOR SLIPSHOD PRODUCERS.

By Geo. F. Robbins.

For two years honey has been a blank failure with me. To get some for myself and a few of my customers I have this winter been buying honey that was produced in northern Illinois and Minnesota. But I must say, if all my purchases of honey must be as unsatisfactory as they have been so far I shall not buy very much. Why will bee-keepers be so slipshod in their methods of producing honey, and caring for the same? Or if some such must be obtained, why will they mix it up and send it off with first class honey? I will tell you what kind of stuff I mean. In the two lots of comb honey I have bought this winter I found specimens of the following:

1. Sections in which moth-worms had hatched and begun to work. I wonder how many other buyers found the same thing. I had to cut some of the honey out of the sections, trim it up, and sell it in bulk.

2. Some which showed plainly that a queen had been up in the super. I wonder if the producer did not know that. Any bee-keeper of experience ought to know what that means. Brood had hatched, leaving their cocoons to blacken and toughen the comb, while a section on one side, it may be both, contained a mass of dry pollen.

3. Old partly filled sections of comb had been used. Apparently they had been left on the hive the season before until fall, been daubed up with propolis, and the comb blackened by water settling upon it and by travel-stain.

4. Some of the honey had granulated in the combs. The producer may not have been aware of that, nor have had any thought that such a thing would occur.

5. A few sections were hardly more than half filled, and some of them but little more than half sealed.

This is a pretty formidable list of faults. Is it possible that any one can send such honey to market without knowing it? If that one does know it, I wonder if he imagines himself in the place of the consumer. Who wants to order home a box of honey to find it wormy, webby, and the surface chewed up? Yet that is no worse than to cut into the honey to find the comb dark and dirty looking, with an especially ugly streak from top to bottom where the edges of the cells had been daubed with propolis, or masses of dry bee-bread, or to find the comb tough and strong.

Such honey, if sent to market at all, should be graded at least third class. To sell it as a first-class article is not honorable, sensible, nor business-like. I am not really harsh or censorious because I speak thus. I simply affirm it as a truth that ought to be taken note of, and that can not be stated in milder terms. That to knowingly sell an inferior article as any thing but an inferior one is dishonorable, all will agree. It is not sensible; for the customer who gets such stuff will be pretty sure to spot the man from whom it came, if he can, and buy no more of him. The consumer may not suffer—*she* is pretty apt to send it back; but in that case the dealer does. At any rate, the producer will be followed up if he can be traced, and suffer the consequences. And it is certainly very unbusiness-like to saw oneself off in that way. Honesty (and quality) are policy in business.

This matter would not be so bad if the party at fault were the only one to suffer. But too often he can not be traced, and neither the consumer nor dealer may know the origin of a lot of honey; hence, not being able to recognize a faulty article, as a connoisseur might be, even when such can be recognized by appearances, and, thinking themselves liable to get hold of some of it, they will be chary of buying at all?

Do you think I give this matter too serious a coloring? No, I do not. I know how you and I are about such things. I admit we would no doubt purchase less of many things than we do if we were to be deterred by the chance of getting a poor article. But I am equally certain that, many times, we do not buy, because of the risk of getting some poor stuff that we do not want, or that is not worth the money. This is especially so whenever any thing of the nature of a luxury is concerned. Luxuries are always

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high-priced, and are expected to be correspondingly high in quality. When they are not they cease to be luxuries, and we will not pay the class price for them. Now, nice comb honey is a luxury. Whatever it may become in the future, at present prices it is a luxury, and the fancy quality of no other edible is more easily impaired.

WIDE FRAMES NEXT TO BROOD FRAMES.

It is neither necessary nor profitable to have much such honey to sell. It takes work and trouble, sometimes money, no doubt, to secure the best; but it pays to make the investment. Superlative pains and care are the cost of producing any kind of high-class article that will take desirable rank in its class. Comb honey is eminently a high-class commodity, and none but a superior article is worth raising. The little of inferior stuff we must have only adds, in fact, to the cost of the other, for it does not—or ought not—pay expenses. Hence the less we have of it the better.

I am satisfied, from experience, that it pays me to take the extra pains. I used to try a wide frame of sections at the side of the brood-nest, and also section-frames and brood-frames side by side in the upper story. But the bees would work the old cappings and bits of comb into the new comb, and especially into the cappings. They would do the same thing to a great extent when I used to set the super next to the brood-frames. Bees are especially prone to do this when the flow of nectar is on the decline, or when a few wet days interfere with honey-gathering. In consequence I decided, several years ago, to have all my comb honey built in single-tier cases with a honey-board between the super and the brood-nest. I have used zinc and wooden honey-boards, with bee-space above; but better than either is the slatted wood-zinc board. By its aid I get clear white comb, untarnished cappings, with no brood, and seldom a cell of pollen in my section honey. I think bees do not go to work so readily in supers thus fixed. It is now that it pays to have one or two sections filled with comb to use as bait in the first case put on. They offset the hindrance of a honey-board. Of course, I am careful to mark such sections and sell them, usually near home, as "off" honey.

I seldom allow honey to leave my honey-house if it has not been fumigated with brimstone at least twice, except in case of fall honey taken off late in September. I have never known moth-worms to hatch in my honey after that time, although I suspect they did in some of that I bought. I fumigated once, one to two weeks after taking off, and again about two weeks after. This is not a hard thing to do. I sometimes burn the sulphur under a stack of supers as they were taken from the hive. But it does just as well when the honey is packed in a box, to burn it in a pan or similar vessel on top of the honey with the lid down, provided there is space enough for the slight flame it makes. A lump the size of a walnut is enough for 150 to 200 lbs.

It may be that the honey I found granulating in the combs was some that had been fed back to complete unfinished sections. It seems that such is inclined to candy. Mr. Boardman says, in the December *Review*, that it is much less liable to do so if it is fed pretty soon after it has been gathered, while it is yet new. I should say it would also help if it is pretty well diluted. I have fed back honey a few times, and I have never known any of it to granulate except some that I fed undiluted in September.

Mechanicsburg, Ill.

[See editorial comment elsewhere.—ED.]

THAT GOVERNMENT BULLETIN ON BEES.

A FEW EXTRACTS FROM THE WORK.

[I have twice before referred to that magnificent little manual of 120 pages, on bees, from the Department of Agriculture, Washington, D. C. One of its striking features are the beautiful engravings, most of them original, scattered here and there through the work. I wrote to the author, Mr. Benton, asking if it would be possible for us to secure electrotypes of some of these engravings. Receiving a favorable response I applied to the Department, and now take pleasure in presenting you some of them.

The first two or three that I shall show you are not striking because of any artistic effect, but because of what they represent. Few of us have had any accurate conception of the relative size of the different varieties of honey-bees. Mr. Benton, I think, may be safely counted as our best authority on Eastern races, and what he has to say will be read with interest. On page 12 we find this relating to the East Indian honey-bee, the matter concerning which I copy entire:—ED.]

THE COMMON EAST INDIAN HONEY-BEE.
(*Apis indica*, Fab.)

The common bee of southern Asia is kept in very limited numbers and with a small degree of profit in earthen jars and sections of hollow trees in portions of the British and Dutch East Indies. They are also found wild, and build when in this state in hollow trees and in rock-clefts. Their combs, composed of hexagonal wax cells, are ranged parallel to each other like those of *A. mellifica*, but the worker brood-cells are smaller than those of our ordinary bees, showing 36 to the square inch of surface instead of 29, while the comb where worker brood is reared, instead of having, like that of *A. mellifica*, a thickness of seven-eighths inch, is but five-eighths inch thick. (Fig. 1.)

FIG. 1.—Worker-cells of common East Indian honey-bee (Apis indica) natural size. Original.

The workers.—The bodies of these, three-eighths inch long when empty, measure about one-half inch when dilated with honey. The thorax is covered with brownish hair, and the shield or crescent between the wings is large and yellow. The abdomen is yellow underneath. Above it presents a ringed appearance, the anterior part of each segment being orange yellow, while the posterior part shows bands of brown of greater or less

width, and covered with whitish-brown hairs; tip black. They are nimble on foot and on the wing, and active gatherers.

The queens.—The queens are large in proportion to their workers, and are quite prolific; color, leather or dark coppery. *The drones.*—These are only slightly larger than the workers; color, jet-like blue-black, with no yellow, their strong wings showing changing hues like those of wasps.

Manipulations with colonies of these bees are easy to perform if smoke be used; and, though they are more excitable than our common hive bees, this peculiarity does not lead them to sting more, but seems rather to proceed from fear. The sting is also less severe.

Under the rude methods thus far employed in the management of this bee no great yields of honey are obtained, some 10 or 12 pounds having been the most reported from a single hive. It is quite probable that, if imported into this country, it would do more. These bees would no doubt visit many small flowers not frequented by the hive bees we now have, and whose nectar is therefore wasted; but very likely they might not withstand the severe winters of the North unless furnished with such extra protection as would be afforded by quite warm cellars or special repositories.

[On the next page is something exceedingly interesting regarding the smallest honey-bees in the world. Just take a look at the size of the cells as shown in the figure, natural size, and then compare them in your mind's eye with comb in your own apiary. Well, here is what he has to say:—ED.]

THE TINY EAST INDIAN HONEY-BEE.

(*Apis florea*, Fab.)

This bee, also a native of East India, is the smallest known species of the genus. It builds in the open air, attaching a single comb to a twig of a shrub or small tree. This comb is only about the size of a man's hand, and is exceedingly delicate, there being on each side 100 worker-cells to the square inch of surface (Figs. 2 and 3). The workers, more slender than house-flies, though longer bodied, are blue-black in color, with the anterior third of the abdomen bright orange. Colonies of these bees accumulate so little surplus honey as to give no hope that their cultivation would be profitable.

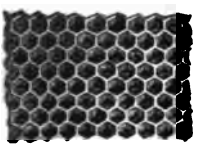

FIG. 2.—Worker-cells of tiny East Indian honey-bee (Apis florea); natural size. Original.

[A few years ago a great deal used to be said regarding the "giant," or East Indian, honey-bees, or *Apis dorsata*, and the possibilities of having them imported and domesticated in this country. Much of truth and nonsense has evidently been circulated in regard to them. Mr. Benton, having been right in their native land, gives us something here that can be relied on.—ED.]

THE GIANT EAST INDIAN HONEY-BEE.

(*Apis dorsata*, Fab.)

This large bee, which might not be inappropriately styled the Giant East Indian bee, has its home also in the far East—both on the continent of Asia and the adjacent islands. There are probably several varieties, more or less marked, of this species, and very likely *Apis zonata*, Guér., of the Philippine Islands, reported to be even larger than *Apis dorsata*, will prove on further investigation to be only a variety of the latter. All the varieties of these bees build huge combs of very pure wax—often 5 to 6 feet in length and 3 to 4 feet in width, which they attach to overhanging ledges of rocks or to large limbs of lofty trees in the primitive forests or jungles. When attached to limbs of trees they are built singly, and present much the same appearance as those of the tiny East Indian bee, shown in the accompanying figure (Fig. 3). The Giant bee, however, quite in contradistinction to the other species of Apis mentioned here, does not construct larger cells in which to rear drones, these and the workers being produced in cells of the same size. Of these bees—long a sort of myth to the bee-keepers of America and Europe—strange stories have been told. It has been stated that they build their combs horizontally, after the manner of paper-making wasps; that they are so given to wandering as to make it impossible to keep them in hives, and that their ferocity renders them objects greatly to be dreaded. The first real information regarding these points was given by the author. He visited India in 1880-81 for the purpose of obtaining colonies of *Apis dorsata*. These were procured in the jungles, cutting the combs from their original attachments, and it was thus ascertained that (as might have been expected in the case of any species of Apis), their combs are always built perpendicularly; also that the colonies placed in frame hives and permitted to fly freely did not desert these habitations, and that, far from being ferocious, these colonies were easily handled by proper precautions, without even the use of smoke. It was also proved by the quantity of honey and wax present that they are good gatherers. The execution at that time of the plan of bringing these bees to the United States was prevented only by severe illness contracted in India.

These large bees would doubtless be able to get honey from flowers whose nectaries are located out of reach of ordinary bees, notably those of the red clover, now visited chiefly by bumble-bees, and which

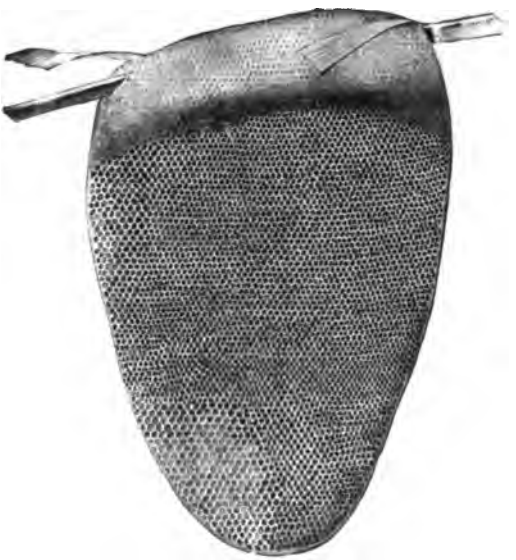

FIG. 3.—Comb of tiny East Indian honey-bee (Apis florea); one-third natural size. (Original).

it is thought the East Indian bees might pollinate and cause to produce seed more abundantly. Even if no further utilizable, they might prove an important factor in the production in the Southern States of large quantities of excellent beeswax, now such an expensive article.

[There are many other things regarding the different races of bees that are instructive, but we pass them by and turn to some of those engravings that are both interesting and instructive. The first one of this series is Fig. 62 in the book. It is, perhaps, the best illustration of a comb of sealed and unsealed brood that has ever appeared. The experienced bee-keeper will notice the large number of queen-cells built here and there, especially along the bottom edge. The author writes regarding it:—ED.]

REARING AND INTRODUCING QUEENS.

When bees swarm they generally leave a number of sealed queen-cells in the parent colony. With blacks and Italians there are usually 6 to 10; rarely more than a dozen. Carniolans generally construct

about two dozen, but under favorable conditions can be induced to build 75 to 100 good cells at a time. Fig. 62 represents a comb from a hive of Carniolans which had built at one time 70 queen-cells. Cyprians usually make 30 or 40 queen-cells, but may greatly exceed this number under the best conditions,

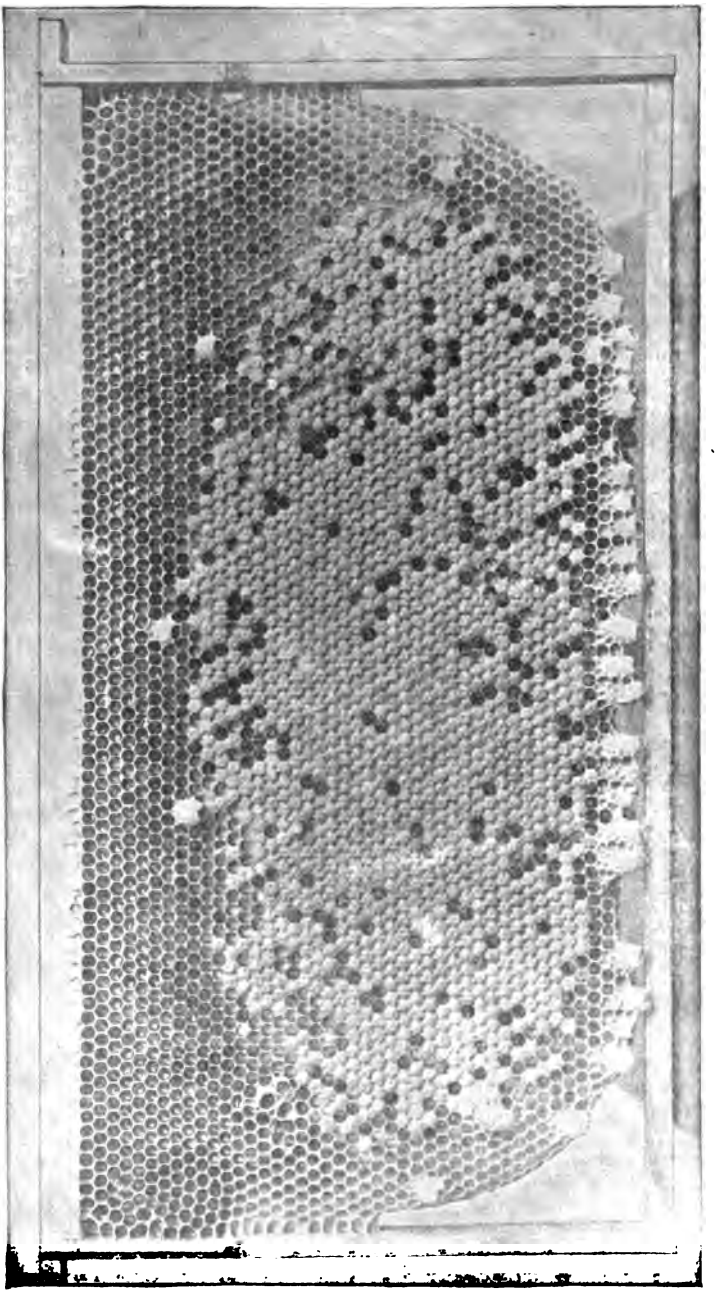

Fig. 62.—Comb showing worker brood and queen-cells. (Original—from photograph.)

while Syrians nearly always exceed it, sometimes even building as many as 200; and the writer has seen 350 cells constructed at one time by a single colony of bees in Tunis. It might be thought that, where so many were constructed, only a small proportion of them would produce good queens. Such is not the case, however; for in general a much larger proportion of the cells formed by these eastern races produce well-developed queens. But in all hives some queen-cells are undersized. This may be because they are located near the bottom or sides, where space for full development is lacking; but in many instances it arises from the fact that they are formed last, and larvæ that are really too old to make full-size perfect queens have to be used. These smaller cells are usually smooth on the outside, and show thin walls. In selecting cells, only the large, slightly tapering ones, an inch or more in length, and straight, should be saved. Yet good queens may frequently be obtained from crooked cells, in case the latter are large and extend well into the midrib of the comb.

[I can not pass this by without calling the reader's attention to the thick top-bar shown. We have thousands and thousands of just such combs in our yard, and a fair average so far as burr and brace combs is about as shown along the bottom edge of that top-bar where you see the bees have built along the wood. The photograph—and the same is also true of half-tones—can not lie, and I am glad I have this picture as a partial vindication of what I have said all along regarding the value of thick top-bars, in doing away with one of the great nuisances we meet in bee culture.

But let us return again to our book. On page 92 is a fine illustration of a simple and practical method of caging queens. The person shown, I take it, is the author himself. The method of caging is one I have used myself, and is both easy and natural.

On page 96 is as fine an illustration of "handling bees for pleasure and profit" as I have ever seen. Our author speaks of it as follows:]

It very rarely happens that a swarm fails to cluster before leaving, but it may do so if it has

swarmed before and returned to the hive because the queen failed to accompany it. Spraying water on the leaders, or advance portion of the swarm, from a force-pump, firing a gun among them, or throwing the reflection from a mirror on them will disconcert the absconding swarm and nearly always cause the bees to settle, but the remedy must be at hand and applied instantly.

When a swarm has fairly settled it is best to hive it as soon as possible, lest others coming out may join it, occasioning a loss of queens, and sometimes of bees, or much trouble in separating them. The operation of hiving may appear very formidable to the novice, and attended with great risks; but a little experience will dispel such apprehensions. The bees, before swarming, usually fill their sacs with honey, and are quite peaceable, so that, by the use of a little smoke in hiving, there is seldom any difficulty. But to be doubly sure, the novice should sprinkle sweetened water over the cluster, and at the same time wear a veil to protect his face. Of course, the hive has been ready for some time, and has been standing in the shade so it will not be heated. If the cluster should be on a small limb which can be readily cut off, it can be laid down in front of the new hive, which should have a full-width entrance or be raised up in front. The bees will go trooping in; but, if not fast enough, gentle urging of the rear guard with a feather will hasten matters. If the bees have clustered on a branch which

FIG. 65.—Caging a queen for mailing. (Original—from photograph.)

it is desirable to preserve, yet where the hive can conveniently be placed directly under the cluster and close to it, the swarm may be shaken into the hive at once (Fig. 67); or the hive may be located on the stand it is to occupy, and the bees shaken into a large basket or into a regular swarm-catcher, and poured in front of the hive. If the cluster is on the body of the tree it will be necessary to place the hive near, and smoke or brush the bees into it. They will go up more readily than down, and may often be dipped with a small tin dipper or a wooden spoon, and poured in front of the hive. Whatever plan be pursued, expedition is advisable; and it is best, before leaving them, to see that nearly all of the bees are inside of the hive; at least, no clusters, however small, should be left on the tree, as the queen might be among those left behind, in which case the swarm would desert the new hive and return to the tree, or go wherever the queen had settled, or, failing to find her, would return to the hive whence they had issued, unless meanwhile some other swarm would issue, which they would be likely to join. A few bees flying about or crawling excitedly over the spot from which the main part of the swarm has been removed need not be heeded. They will find their way back to the stand from which they came. As soon as the swarm is fairly within the new hive the latter should be carried to its permanent stand, and well shaded and ventilated.

[There are other fine engravings scattered all through the book, and I am in hopes that every one of our readers will have the pleasure of owning a copy *providing* the powers at Washington will permit a larger edition.—ED.]

AGE OF BROOD-COMBS.

Question.—How many years can combs be used for brooding-purposes in a hive before they should be renewed? I have some which have been in use four or five years, yet the cells seem very small

Answer.—I have combs in my hives which have been in constant use in the brood-chamber for 20 years; and, while the cells do appear small in looking at them, yet, so far as I can see, it makes no difference in the size of the bees hatching from these cells. A neighbor tells of combs being in use for 40 years, and yet no perceptible difference in the looks of the bees coming from these combs. All bees, when first emerged from the cells, look small; but wait till they are 36 to 48 hours old, and it will be seen that they look altogether different, especially during a honey-flow. Some seem to think that bees do not grow any after they cut out of the cells, but I think a little observation will satisfy any one that the young bee "plumps out" considerably after it emerges from the cell. Several times during past years I have compelled the bees to rear workers in drone-cells, and, so far as I could discover, using the closest scrutiny, said bees were not a whit larger three days after hatching than were those of the same age hatched from combs from 10 to 20 years old. It is true, that each emerging bee leaves a slight cocoon or lining in the cell; but as this cocoon is much thicker at the base of the cell than at the sides, and so thin at any spot that it is hardly perceptible, no bad results seem to arise

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therefrom. It is always safe to use combs as long as they are in good condition, and old combs have the advantage of being better for the bees during winter than new; consequently I have no thoughts of throwing away these 20-year-old combs at present.

OLD POLLEN IN COMBS.

Question.—I have several combs which have old, hard, dry pollen in them. Shall I give these to the bees to clean, or shall I melt them for wax? I gave a few such combs to the bees last year; but the pollen was so hard that the bees had to tear the combs down and build new, which caused them much trouble and labor.

FIG. 67.—Hiving a swarm. Original—from photograph.

Answer.—I have had combs filled with pollen, or partially so, all through the lower half of them, which was so hard that the bees had to remove the whole of the cell-walls in clearing it out, leaving nothing but the septum; but I do not know that I ever had the combs entirely cut away in this process of removing old pollen. As the septum of the comb remains, cells were built out upon it later on, very much as foundation is often used in times of a heavy honey-flow, so that the cells were still of worker size, which is not the case when combs are entirely cut away, in which case cells of the drone size are usually built. But of late years, where from any cause pollen has hardened in the cells, I place such combs in tepid water, and allow them to remain thus for a few days, when the pollen will all be soaked soft, and the extractor will generally throw all out. If I do not wish to use the extractor on such combs, I shake what water out I can conveniently, after the soaking process, when the combs are put in sweetened water for a few hours, and then given to the bees, which will clean them up as good as new. I believe that it pays to let the bees clean all such combs; and as to the trouble to the bees, spoken of, I should hardly think this was worth mentioning, especially where the combs were given them during some dull time, or in the absence of a honey-flow.

The questioner speaks about melting these pollen-filled combs, to obtain wax from them. I wonder if he or any one else has ever tried getting wax from such combs by means of the solar wax-extractor. I have, and I find that, where there is much pollen in combs thus melted, said pol-

len will absorb all the wax there is in these combs, and quite a little more from combs containing no pollen. Therefore, of late I am careful how any pollen is allowed to go into the solar wax-extractor, as pollen is a great consumer of melted wax. If combs containing pollen are to be rendered for wax, it should be done by means of boiling water, as the water dissolves the pollen as well as to liquefy the wax, thus allowing the wax to escape without being absorbed by the pollen.

DRONE AND WORKER EGGS.

Question.—Can bees rear drones from eggs in worker-cells? or can they *make* a drone out of a worker egg?

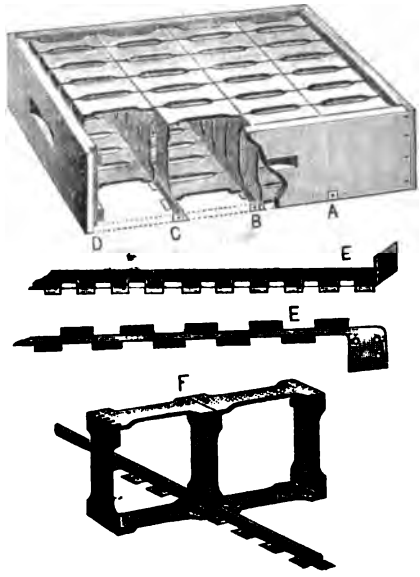
Answer.—Bees can rear drones from eggs in worker-cells, but the eggs must be what are known as "drone eggs." Drone eggs are never laid in worker-cells, except by a failing queen, a drone-laying queen, or what is known as a "fertile worker." A drone-laying queen is a queen which has never mated with a male bee, or a drone. But, so far as my knowledge goes, an unfertile queen always prefers to lay in drone comb in preference to worker comb, she seeming to understand that drones from worker-cells are always dwarfs. Drone eggs are unfertilized, hence it is impossible to produce workers from them, no matter whether they are laid in worker, drone, or queen cells. That bees can rear drones in worker-cells, and workers bees in drone-cells, shows that the size of the cell has nothing to do with the matter of fertilization of the eggs of a queen, as was formerly supposed by some. As to bees making a drone out of a worker egg, I should hardly be willing to say that they can not, although the majority of bee-keepers will tell you they can not. Some claim that the bees do not know one egg from another, except as they find it in a drone or worker cell; but I am not sure but bees do remove the fecundating matter from an egg intended for a worker, for I have many times had drones reared from eggs evidently intended for worker bees, until the queen was removed for sale or otherwise. I have often seen this in nuclei where the queen had been removed, when, had she not been removed, all the brood would have hatched out workers.

AN OPEN LETTER TO THE DADANTS.

A NEW STYLE OF T TIN.

By A. B. Anthony.

Chas. Dadant & Son:—The most influential source of my thoughts on sections and a "super" for sections has come to me from your writings in "Langstroth Revised," the completion of which is embodied in a super sent you by express to day. When you have thoroughly



ANTHONY'S T SUPER AND NEW STYLE OF T TIN.

examined it, I should like to have it, and your opinions of it also, sent to the A. I. Root Co. I wish you could also tell the Roots something about open-sided sections.

I'm going to tell you the best way to put sections in this super, not because you will find it necessary in this particular one, but because you may some day have occasion to deal with such a super improperly made, or with sections of large dimensions, or sections daubed with propolis, and particularly because in the beginning it is well to learn to do the right and better way.

To put sections in this super, run them in rows lengthwise of it; never crosswise. Put the first two sections in the two middle tiers, away from the side of the super, where the tins will press apart, and then slide them against the super's side. Next come the two sections in the end tiers of super. Be sure that their corners nearest to the center of the crate are below the supporting tin, and, with a push on the opposite and upper corner, the section is past the flaring and tightening strip, and will go snugly down to its place. Then come the two middle sections in the next row, etc.

The crate should rest on a table or other flat surface while being filled; and, above all things, never try to crowd the last four sections in the crate if they do not go easy. A dry room will soon narrow swollen sections.

Coleta, Ill., Nov. 21.

[Below is the reply of the Dadants to us.—ED.]

Mr. Root:—The inclosed letter will explain itself. We have received the box, and reshipped

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it to you. You are better versed than we are in the section-case business, and better able to pass an opinion, therefore we will not say any thing. We suggested, however, to Anthony that he had better put something behind the outside sections, so the bees could not get in. We prefer sections open three sides to all others, because you can have them either open or closed top, and because in crates like this, for instance, you could put the closed side against the wall and effectually close the section.

Hamilton, Ill. C. P. DADANT.

[The principal feature of this T super, and one that does not seem to be touched upon by Mr. Anthony himself, is the special form of the T tin itself. It is simply a strip of tin, notched as shown, the upright part of the T being a single sheet of tin. The ordinary T tin, as our readers know, at this point is made up of a fold; and the consequence is, that it crowds the sections a little way apart. Anthony's form of T tin reduces this distance to a minimum, and practically lets the sections come in simple contact, avoiding to a great extent the tendency of sections to become diamond-shaped, as in the ordinary T supers. But the notched or new form of T tin is quite difficult to make, and is not as strong as the ordinary T tin. It holds quite well when the super is full of sections; but I imagine it will not "stand the grief," season after season, when propolis sticks or when the case is empty.—ED.]

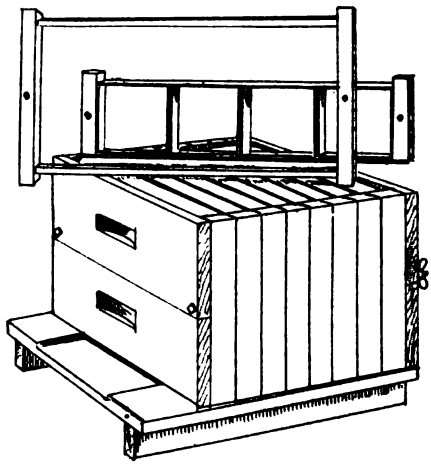
GABUS' CLOSED-END-FRAME HIVE.

ITS ADVANTAGES, AND WHAT IT WILL ACCOMPLISH.

By E. H. Gabus.

In the accompanying picture, one section-holder full of sections, and one brood-frame, are placed on top of the brood-chamber. The latter is composed of any desired number of brood-frames and two panels held together with a ¼-inch bolt. The frame ends are ¾ inch thick, and are pierced with a $\frac{5}{16}$ hole edgewise, and the ¼-inch bolt runs through them all and also the panels. The bolt has a thumb-nut. The section-case is made up in the same manner. The entrance to the hive is cut into the bottom-board. The brood-chamber rests directly on the bottom-board and not on cleats. The brood-chamber is reversible. There is no outside case to this brood-chamber, as there is no need of any. It has a cover like that to the Dovetailed hive, only it is smaller. It contains less lumber than any other hive except a box hive. It is practically a box hive that can be also a movable-frame hive. It has all the advantages of both the box hive and the movable-frame hive. It is the nearest approach to the straw hive for ventilation in wintering.

This hive will accomplish all that is claimed for the Heddon hive, and do it easier and cheaper. As it can be made of any depth it can be a horizontally divisible hive. It is contractible, expansible, and reversible, in a higher degree than any thing in use now. It is a cheap hive. It is the best hive for migratory bee-keeping. It is easily inverted, and is mostly examined by



inversion, without unsealing the cover. It is the hive for farmers and those who dislike so much manipulation, and who want to handle the hives more and the frames less. It is handy for making nuclei or for dividing. Those who do not like tiering up can add sections at the sides. It can be made of any size desired, without any cutting or waste space or material. These are some of the advantages possessed by the new hive.

Brock, Neb.

[The principle of your hive is much like that of several other closed-end-frame hives, with this one exception: The end-bars are pierced with holes as shown, and a tightening-rod run through. The other forms of this kind of hive usually have the tightening-rods just outside of the end-bars, the panels or side-bars projecting over far enough so that the rods can be let into slots cut into the ends about midway up each side-board. By your plan every thing is made secure, it is true; but I imagine that it would be some little work to push the tightening-rod through those holes, because every frame *must be* brought to an exact alignment. By the other plan the rods are simply slipped into the slots referred to, and one or two twists of the thumb-nuts bring every thing up tight. Your plan, however, has the slight advantage that the sideboards, or panels, do not project over and beyond the length of the frames; but for all that, I think I should prefer the projecting panels.

Mr. Elwood and Mr. Hetherington, of York State, use the Quinby arrangement, which is somewhat similar. Mr. Elwood, at least, told me that tightening-rods were too expensive, and no better than the looped string, which costs really nothing, and can be looped around the hive in a twinkling when the knack is once acquired.

Perhaps I might say to our readers that this kind of hive—that is, closed-end frames and panels—makes the cheapest hive that can be constructed, the two panels taking the place of the hive proper. The end-bars are also the ends of the hive; and all that is required is

side-boards; and these alone, with frames, make up the hive proper.

I have seen hundreds of hives with closed-end frames of this description (i.e., closed-end frames and panels) in a number of different apiaries; and I must say there are a good many nice features about it. The whole hive can be split into perpendicular halves or quarters; and as the bees can propolize only one side of the end-bars, a common penknife will separate the frames. This is no theory, for I have seen it done by Mr. Elwood over and over again, and the bees were hybrids and blacks at that.

Well, there is another advantage yet: When the perpendicular halves are pulled apart, light can shine in from the ends, and one can very often find the queen without so much as lifting the frames up.

For wintering, a light thin shell or cap can be set right over the whole thing. This makes a dead-air space; or if one desires to pack, cushions can be set in, and a cap set over the whole.—ED.]

Heads of Grain from Different Fields

USING ONLY STARTERS IN THE BROOD-NEST.

A friend of considerable experience tells me it does not pay to use full sheets of foundation in brood frames. He recommends starters, say about half-sheets; and when a swarm is hived on these starters, the contracting of the brood-nest by means of a division-board to about four frames. After these are drawn down and out, the rest of the frames are to be added one at a time as fast as finished. I tried full sheets last season, and the cost was more than the profit Besides, the foundation sagged, and the combs are by no means perfect.

If the plan above given is used, and the frames supplied with wire the full width, would not the bees fill the frames with nice straight worker combs, care being taken to set the hives level, so that the frames hang perpendicular?

Vine, O., Jan. 23. H. M. STUMP.

[The plan you propose, of using only starters, is practiced by some, and in some cases appears to be a success. Similar plans are advocated, notably by Samuel Simmins, England, and W. Z. Hutchinson. Yes, under certain circumstances you will get worker comb, and in other you will not. These are explained in Mr. Hutchinson's Advanced Bee Culture.—ED.]

BEES BUILDING OUT DRONE FOUNDATION QUICKER THAN WORKER.

I wrote you an article about a year ago, which you published on p. 619, 1894, telling the result of my experience in using drone foundation in the sections. I claimed that, when the regular (or worker) size was used, the bees would not finish it and cap it as soon as they would when drone size was used; and when a starter was used, the bees would change it to drone.

I have experimented by having each alternate section all drone and all regular; and last season I "kept tab" on 550 sections, and find: The drone sections are finished 13 to 68 hours before the regular, or an average of about 32 hours. In the height of the honey-flow, hours are worth money. I wish some of the older bee-keepers would give us their experience on this point. I will use drone foundation in all my sections hereafter. HARRY DWIGHT.

Friendship, N. Y., Feb. 3.

[At the time your article was published I called for reports; but, if I am correct, none were received. Bees, it is true, seem to prefer, for storage, drone comb; but the trouble, as I then pointed out, was that the queen, not having drone comb in the brood-nest, was quite sure to go into the sections if filled with drone foundation. But this can be overcome by the use of perforated zinc.—ED.]

"STICK TO YOUR HIVE;" A LITTLE GOOD ADVICE; THE HEDDON HIVE; THE HIVE CONTROVERSY SETTLED BY A TEXAN.

I have read the big-hive question through and through, against the little frame, and am glad to see big hives coming out where they should—always ahead. My little hives, the Heddon, my wife is using for plant and flower-boxes. I find them too small for any thing in the apiary except ornaments. I have tried, you might say, "all kinds" of hives, to my financial sorrow. I have scattered about and given away over 200 hives of various dimensions in solving the hive question; but I have it solved, and I am proud of it too. I will advise you beginners to abide by some other chap's decision, and not try nor buy more than one kind of hive. Big, little, old, or young, stick to your hive until you can sell honey in carload lots, and then your choice will be worth choosing, and then you can throw away what you have for something you know is better instead of worse.

The hive I am using now, and expect to continue to use, is nothing worse than the ten-frame Dovetailed hive, two to four stories high, though I prefer them three stories; and I can assure you, if you are in a land of milk and honey, that you will have the honey if you will put in 400 or 500 such hives. They require less attention, and are sure to pay for the attention they do get. W. W. SOMERFORD.

Navasota, Tex., Dec. 15.

FRITS IN AMERICA.

Mister A. I. Pee Man, Dear Sir:—Ef you don't got to be a great pee-man like mine selef you don't vas node me; aint dot so? I left der vaterland and come dot ocean over more as a long time ago. I vas to the garten in dem cassel come close by Nye Yorrick. Pooty soon sum gustom-house offeetseers dey come on our big poat. By and by, pooty soon gwickly dey vas serching all der peeples and der cloze; den I node some potty had sumthing stole. Ven dey vas to me come I told dem I vas a goot poy,

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and I don't vas steals noddings; and vat you dinks dey wood not dake my vord for noddings, and dey look at every tings dat I had tied oop in my noze-rag, and ven dey don't find dem goods stole I vas as habby as a clam on a punkin vine; don't it? Den dem offeetseers dell me to go dat shore on. I doos it and stay mit Nye Yorrick a few days, and den I git me a steembote on and come dot horn around to Frisco, and den here I vas come.

I go me out der country in to see mine good frent Philip Spiegel who came frum der vaterland more as a long time ago. Philip ish a grate pee-man yust like yourselef; he has zwei —vat you call 'em? Oh! ya, kolenays, and he got dis year may pe more as a lot of hunny. I buy me some land by Philip's, and some pees got, and now I vas a pig pee-man tu. I bide 2 kolonays, and dig der grount oudt and get 10 more. Aint dot goot? So now I vas 12 got. 1894 vas nix goot, and my pees all go dide except 7; and ven I see dat I vas all proke up, and cride my eys vide open shut. Philip's pees all go dide, and he don't vas in der pee pishness now any more. He says pees ish nix goot. I don't dink dat vay. I vas in it tu mit bote feet, and I dink I vill suckseed I vas alone by mine selef, and I soon get me a new house made, and den Catarina will der ocean come over, den ve'll got married. Dat Catarina is such a goot girl, and ven we vas got married some day on your wheel get and come and see us. Dat vas all. Goot by. FRITS BRAUN.

San Diego Co., Cal., Dec. 9.

A PLAN FOR TRANSFERRING.

I wish to transfer 40 colonies as follows: During fruit-bloom, remove the hive containing bees from its stand, and place a new hive containing 5 frames of foundation in its place. Drive *all* the bees into the new hive; place a queen-excluding honey-board upon the top of it, and then place the old hives upon top of this. My theory is, that bees will go up into the old hive, and care for brood and eggs; but as the queen can not get above, a majority will remain below and draw out the foundation into comb. In 21 days remove the old hive, and run combs into wax. Can you recommend the plan? Would they be likely to swarm?

Browning, Ill., Feb. 18. G. A. DYER.

[The plan you speak of for transferring will probably work; but a better way would be to move the old stand to one side a few inches, and, when all the brood was hatched out in the old one, remove it after shaking the bees all off in front of the new one.—ED.]

B. TAYLOR'S COMB-LEVELER A VALUABLE TOOL FOR THE APIARY.

Well, that comb-leveler, that B. Taylor invented, I made one the next day after I saw the cut in GLEANINGS; and as soon as I had sections suitable I went to work and did the nicest job of comb-leveling. It is certainly one of the best pieces of furniture that the section-honey producer can have. It costs but a few cents to make one, and one can save dollars in foundation by its use, and it makes the comb very nice and clear. Yes, and I have been lending my leveler all around the country to bee-keepers, after they saw how nice my work had been performed; and Bro. Taylor ought to have a vote of thanks for presenting so valuable a present to the bee-fraternity, and I suggest the same. J. A. GOLDEN.

Reinersville, O., Feb. 7.

E. E. G., Pa.—No one has ever advertised the stingless bees of Mexico or Cuba; in fact, they can not very well be domesticated. They are too much like ordinary flies. We had a little colony of them once, but could do nothing with them; at least, no more than we could do with an ordinary nest of bumble-bees.

J. L. S., Mont.—Snow drifted up against the entrances of hives will do no particular harm. Sometimes, however, after a rain or thaw, the snow melts, runs into the entrances, and freezes. Unless the ice is removed the colony within will die; but ordinary snow does no harm whatever.

You could possibly pour syrup from a height into empty combs, and give the bees the combs. We have done this; but a much more satisfactory way is to give the bees lumps of sugar or syrup direct from the feeder placed directly over the brood-frames. The pepper-box feeder will answer very nicely for this purpose.

S. G., Wash.—You can have a double entrance, as you suggest. As to how the bees will fill the sections in such a case, I can not speak from experience; but for some reason the majority of honey-producers prefer only one entrance. The principal reason, I suspect, is that bees try to get their surplus as far away from the entrance as possible, away from the cold and away from robbers.

W. G. J., N. Y.—The trouble that you speak of, bees building comb between the separators, that is, above and below them, if I understand you, is a little unusual, and can be accounted for only by the possible fact that you may allow the supers to become too much crowded. If you place another super under, just before the one is completed, you will remedy the trouble to some extent. The use of wider separators will also be an advantage, as you suggest.

A. B., O.—I would not advise you to set the bees out, even if they are uneasy. It is too

early yet. Give the cellar good ventilation at night, when it is not too cold, by leaving the doors and windows open, and close up again in the morning. I would hardly advise you to take your bees out before maples come into blossom. Some, however, think it is an advantage to take their bees out early; but better take them out a little too late than too early.

A. C. A., Wis.—If you do not claim that the honey you are selling, bought of another, is of your own raising, I do not see why your customers should object to it providing you stand guarantee as to its purity. Such objection as you find is very unusual indeed. They certainly could not arrest you for selling what you do not produce yourself, unless, perhaps, there should be an ordinance against selling stuff which you have not yourself produced, without a license.

E. T. C., N. Y., desires us to offer a reward to chemists who will discover some chemical which, used in small quantities, will prevent the granulation of extracted honey. The best method I know of is to bring the honey up to 180 degrees, never higher, and seal immediately while hot. Sometimes it will not granulate for two years, and sometimes it will in one year's time or less. I should not like to put any thing into honey for any purpose whatever. I should prefer to leave it just as the bees give it to us.

J. M. W., Cal.—I can give you no particulars in regard to mixing glucose with honey. Such a practice is condemned by all reputable bee-keepers, and I feel sure you would not knowingly desire to do injury to the industry. In the first place, I doubt if you could make it pay on a small scale. Yes, there is a demand for water-white honey; but I think you will find in every case it is pure, genuine sweet, from the flowers. White-sage honey from your State is water-white, and clear and beautiful in color; but glucosed honey is abominable to the taste and injurious to the health.

H. C. S., Fla.—The method of using two starters in one section, as spoken of by B. Taylor in a recent number of GLEANINGS, was the one originally advocated, I believe, by Dr. C. C. Miller. He puts in a wide starter at the top of the section and a narrow one at the bottom, the two starters being about ⅛ or ¼ inch apart. The bottom starter should not be much wider than ½ or ¾ in., otherwise it will tumble over and only make the matter worse. The object of the bottom starter is to induce the bees to make a continuous comb attachment clear to the bottom of the section. This fills the section out better, and better fits them for shipping.

J. Y. T., N. Y.—It would be impossible to give an exact answer to your question as to the proper size of a honey-tank for two hundred colonies of bees. Much would depend upon the honey-flow, locality, and whether you desired to store the entire crop; if the latter, the tank would need to hold about one thousand gallons. This would allow about 50 lbs. per colony.

In reply to your second question, an eight-foot windmill, under a good stiff breeze, might run a light power mandrel for a 7-in. circular saw; but a ten or twelve foot would be much better.

B. N. B., Minn.—You can practice uniting as you suggest. If you are not particular about which queen, the bees will destroy one and keep the other. Otherwise you had better destroy or remove the least valuable one.

Japanese buckwheat yields no more honey, but larger and more grain. All buckwheat honey is dark, and all about the same quality.

There are ways of doing something toward the prevention of swarming when running for honey. All these, and more, are set forth in our A B C of Bee Culture.

J. S. C., Mich.—I think you misunderstood Mr. Boardman. By unfertilized eggs he meant eggs laid by queens that had not been fertilized; but, as we now know, queens have the power to lay both fertile and unfertile eggs. You will find this matter quite fully explained in Cheshire's work, "Bees and Bee-keeping," Vol. I.; also in "The Honey Bee," by Cowan, and in "Dzierzon Theory," which has now come to be accepted as fact. In the end of each egg there is a micropile, or minute hole. Each egg laid for a worker-bee receives through this opening, as it passes from the ovary of the queen, the spermatic fluid; but the eggs for drones do not receive the fluid.

L. C. J., O.—In regard to windbreaks, I would not advise going to the expense of setting out trees of any kind, because it takes so many years for them to mature sufficiently to be of any service. It is true, we have around our apiary a row of tall evergreens; but they have been seventeen years in growing, and it is only for the last three or four years that they have been of much service. They make a perfect windbreak—the very best—but they are very expensive; and by the time they would be of service many an apiarist would be out of the business. As a general rule we would advise the selection of a locality where natural windbreaks may be found. The apiary can often be located in the L that is sometimes formed by the barn and wagonsheds. If, however, there is only one place where the apiary can be located, and that has no windbreak, I would advise putting up a tight board fence, say six or eight feet high, using cedar posts if you can get them. This will last a good many years, and be ready for immediate use.

No, windbreaks do no harm in shutting out summer-breezes. If the bees have sufficient entrance they can create ventilation enough to keep the hive cool, providing they have a little assistance in the way of shade.

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WE have received a vigorous protest from Mr. Thaddeus Smith, an old contributor and subscriber, against the idea of petitioning Congress to order an appropriation for printing 100,000 copies of Benton's new book, as proposed by Hon. Geo. E. Hilton. The protest is well worded, and sound in argument; and before bee-keepers go too far, perhaps they had better wait until they see his article. Unfortunately it comes too late for this issue, but it will appear March 15.

WE have excellent pure-food laws in this State; and a recent decision from the Ohio Supreme Court sustains them on every point. It is a misdemeanor, not only to adulterate, but to sell foods in the State, even though adulterated in another State; and it makes no difference whether the vender knows of the adulteration of the product or not. The State does not have to prove it, and he is liable just the same. The recent decision means at least $20,000 to the State annually. Our food-inspectors are active and alert, and are making the sale of adulterated food-stuffs a dangerous business.

DURING the past few days we have received several complaints against F. I. Sage & Sons, commission merchants, of New York. We had decided to drop their advertisement until these matters were adjusted, when we received notice to the effect that the firm had failed. Their card is out now of course. The only reason we speak of it now is to prevent further consignments from going to their address. Of course any honey sent on commission is the property of the shipper, and can be by him replevined. F. I. Sage & Sons, were an old firm in whom we had always placed confidence, and we regret matters have taken the turn that they have.

IN our last issue, page 137, in a footnote just following the statements of the three bee-hive manufacturers I said, "Besides ourselves I believe the three firms here represented are the only ones in the country who manufacture a full line of bee-hive material so far as woodwork is concerned." In saying this I did an injustice to an old well-known advertiser, E. Kretchmer, of Red Oak, Iowa. By his card in this issue it will be seen that he is well equipped for manufacturing every thing in the line of bee-goods. I don't know how I overlooked him; but by good rights I should have included him in the list of those "who manufacture a full line of bee-hive material." As in the case of the other three, I have asked him to make a similar statement of his business, which I shall be glad to publish later with his photograph.

WE have on hand several good articles in type which have been crowded out of this and the previous number for lack of room. I have been in hopes we could "catch up" with our space; but as I see no immediate prospect of it now, we shall have to add extra pages next issue to take them in. I also have more good articles in manuscript which I fear will never even get into type, for the reason that the rule of the "survival of the fittest" will make some of them give room to something perhaps a little better or more seasonable. The editorial fanning-mill may not *always* do a good job of sifting; but when it gets out of gear, kindly call the editor's attention and he will see if it can be fixed.

FOUNDATION BY THE OLD PROCESS OF DIPPING, FIVE TIMES MORE LIABLE TO STRETCH IN THE HIVE THAN THE NEW WEED PROCESS.

JUST as soon as we got the new Weed process of making foundation nicely under way, we sent Mr. O. O. Poppleton, of Stewart, Fla., sample sheets of the product, and sample sheets of the old foundation, same weights and size. These he was to test in the apiary as soon as the weather would permit, to determine the relative sag or stretch of the two kinds of foundation in the hive. After he had made his first tests, he wrote us that the difference was slightly in favor of the new process; but the weather was hardly suitable to arrive at satisfactory results. A month or so later we heard from him again, under date of Feb. 19, giving more exhaustive experiments, the result of which showed that the sag by the *old process*, or dipped foundation, he had been trying, was *nearly five times greater* than by the new process.

Mr. Poppleton, cautious as he is, desires to test the matter further, when the weather is hotter, and will report again. He adds: "It looks as though your claim, that the new method gives extra toughness to the wax, is correct." Any one who works the two kinds, the new and the old, in his hands can readily see the difference; and it is not surprising at all that the bees should discover the marked difference in favor of the new foundation. Incidentally it may be remarked that the bees can work this wax in a much cooler temperature than the old dipped product.

SYRUP BY THE COLD PROCESS VERSUS THAT BY THE OLD WAY.

SKYLARK, in another column, calls attention to the difference of opinion between Dr. Miller and Mr. Elwood regarding syrup for feeding made by using heat, versus that made by the cold process, as was spoken of in GLEANINGS some time last fall. Both of these bee-keepers are practical men; and when two such doctors disagree, who shall decide?

Last winter, and so far this winter, we tried,

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and are trying syrup by the cold process, and so far as we can see it is fully equal (if not superior) to the ordinary syrup made ⅓ water and ⅔ sugar where heat was used; and by the cold process we have used the sugar and water half and half, and it was then brought more nearly to the consistency in which bees find the raw nectar in the flowers. Such thin syrup, I am sure, is ripened better whether heat is used or not; and when sealed in the combs, for us at least, it makes very much better stores. None of such syrup has shown the least tendency toward granulation, and the bees last winter came out on it in perfect condition. I do not believe heat has very much to do with it either way. Mechanical mixtures can be effected perfectly by vigorous stirring, either hot or cold, providing the sugar is in proportion of half and half, and this, in our experience, is quite thick enough in order to insure ripening on the part of the bees. They will then reduce it down themselves to the right consistency, if you give them a chance.

BAD COMMISSION MEN; OR, SLIPSHOD BEE-KEEPERS AND SLIPSHOD METHODS OF PUTTING UP HONEY.

I HAVE had a good deal to say lately in regard to selling honey on commission; and I have also referred to some of the tricks of the trade that are practiced by some commission houses not overly scrupulous. But I am coming to believe more and more the trouble is as much with the bee-keepers as with the commission houses. Please read the article by Geo. F. Robbins, in another column. I tell you it is perfectly abominable, the way bee-keepers put up their honey. The majority of them do not stop to scrape their sections, do not think it pays to grade, or, if they do think so, they do not take the time to do it. Then, moreover, they are penny wise and pound foolish in trying to economize in putting up their comb honey in cheap, poorly made (home-made), shipping-cases; and a good many times these shipping-cases are too large to fill out the crates, and sticks and boards are used to fill out the crate. I saw some such cases when I called at one of the commission stores in Chicago; and I do not wonder that the honey-merchants can not, and do not, realize on such honey full market quotations.

The great and absorbing question nowadays with bee-keepers is, *how* to get the *honey*. Well, having gotten it, what folly it is to knock off from ¼ to ⅓ of its value—yes, even more than that—when a *very little time* and ingenuity and taste on the part of the bee-keeper would save it all! For instance, how much time will it take to grade 2000 or 3000 lbs. of comb honey? I venture to say a ton can be graded by a smart boy or woman *easily* within a day. And I am sure it would add, easily, a cent a pound to the value of the honey. Or, in other words, that smart boy or woman could earn $20 for the day's work. Pretty good wages, you say. Well, perhaps that person can make another cent by scraping. But some "penny-wise" bee-keepers imagine they are going to save two or three cents on shipping-cases by making them themselves. They figure the lumber costs so much a foot, and that they can get them made at the planing-mill. They get them made, but what are they? The buzz-saws they use at these mills generally have very coarse teeth, and the work is rough; and then they don't understand, as do the bee-hive manufacturers, the importance of *absolute accuracy;* and, furthermore, they do not know how to go at the job in the first place. The bee-keeper who saves two or three cents on a shipping-case will probably lose twenty-five or even fifty cents on every case of honey because the goods look so "ornery" and awkward. The average commission men receive honey put up in all sorts of styles; but these "ornery" lots have to wait until all the best lots are cleaned out, and then buyers will take it at a greatly reduced price.

Commission men have come in for their fair share of blame; but bee-keepers must not forget that the trouble is not solely with them. I have referred to slipshodness in putting up honey before, and I shall keep on referring to it until bee-keepers, at least our subscribers, will get to the point where they will put up their honey, and realize decent prices. Give the commission men fits if you want to; but do not lay all things at their doors.

FASTENING SHEETS OF FOUNDATION INTO BROOD-FRAMES.

As this is about the season of the year when bee-keepers will be doing this work, a few hints may not come amiss. There are a score or more of ways of doing it. Some of them are good, but more are poor. Putting, as we do, hundreds of sheets into brood-frames, we can not afford to fuss with any but the very best. But you say you have already tried those in our catalog; but from the number of inquiries that have come in, it seems that there is something that is not yet understood. The method that we prefer is that shown on the next page.

This is a modification of the Hambaugh roller used so successfully by the Dadants and others. It consists of a handle slotted out at one end to receive a wooden wheel, about an inch in diameter and half an inch through, and nicely rounded on the edge. All that is required is to put the sheet, one edge of it, along the molded comb-guide, and then, with the roller previously dipped in water, roll the edge down until it adheres to the comb-guide firmly. So far so good. But it seems that some of our friends and patrons have done all this and yet have not succeeded in making a good job.

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In talking with our people this morning who put in foundation, I think perhaps I have omitted one or two essential points in the directions. One is, that the foundation should be set in the sun, near a stove, or a coil of pipe, if

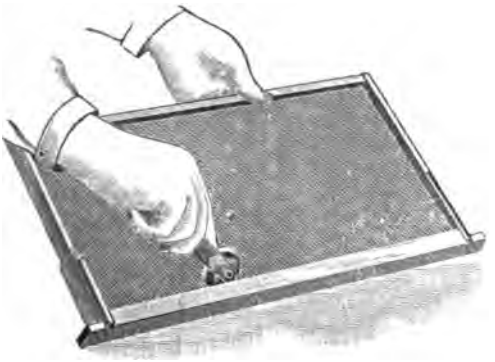

FIG. 1.

the day is not warm enough to make it soft and pliable. This is quite essential; otherwise, after the edge of the sheet is rolled on to the comb guide, it is liable to pull off. But our people say it is not even necessary to have the foundation warm, providing the *wooden wheel itself* is kept immersed, while not in use, in a cup of *hot* water. Even if the foundation is cold and hard, the wheel, steaming hot, softens the edge so that a good firm attachment may be made. Perhaps there may be times when it

FIG. 2.

will be necessary to warm the foundation and use the hot water too; but ordinarily, in summer weather, when foundation is set near a window where the sun strikes it, the wooden roller will make it stick, even when lubricated with cold water.

But not all people can be got to place the same estimate on the same device. Some pre-

FIG. 3.

fer the melted-wax plan. There are several; and perhaps the best one is simply a tin tube about ½ inch in diameter, six or seven inches long, tapering at the end with a small hole at apex. On one side, near the handle, is pricked a small hole so that when the tube is stood up in a cup of hot wax (heated by a lamp) the air will escape and the wax will flow in at the small hole in the apex before referred to. In use the flow of wax may be regulated somewhat by stopping the air-hole with the thumb. (See Fig. 3.)

The foundation is put into the frame, and laid against the comb-guide. Then the little tool containing the hot wax is drawn out, and the point inserted up into the corner of the frame, and it is then drawn across the whole top-bar, as seen in Fig. 3. The hot wax runs out of the little hole in the end, leaving a train of wax along the edge of the foundation to fasten it.

This implement is specially serviceable where a groove is made in the top-bar. The foundation is inserted in this groove, and then this tool with its hot wax is drawn along the edge. The wax runs out, thoroughly cementing the foundation into the groove.

A tool for accomplishing the same purpose is shown in the next engraving. This is simply a piece of tin, as shown, and mounted in a wood-

FIG. 4.

en handle. One end of this wooden trough, as it were, is drawn to a small hole or opening. To use, dip it full of hot wax, and draw it quickly along the edge of the foundation, in contact with the top-bar.

Both of these ideas we got from Mr. J. Van-Deusen, of flat-bottom-foundation fame. He has used these implements for years, and prefers this method of fastening to any other he knows of.

In order that I might myself place a proper estimate on these tools as compared with the Hambaugh pressure method, I tried the tube first described, going to the wax-room, where there is melted wax and plenty of foundation and brood-frames. Yes, indeed, I found I could fasten foundation, and do it quickly, but not any more quickly than with a Hambaugh roller, but not nearly as nice a job, either in looks or in the security of the fastening. The wax had a fashion of streaming over things, and then I found I had to hold the frame still for a full minute in order to allow the streak of hot wax to cool before I could lay it down. And even after it cooled, the sheet would sometimes pull out. But I could readily see that the tool was the best implement we could possibly use providing a groove were cut in the top-bar on the under side, far better than the Hambaugh roller or any similar device. For those who prefer and will have saw-kerfs in the top-bar, this, in my judgment, is the best fastener yet brought out.

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OUR HOMES.

Many are the afflictions of the righteous; but the Lord delivereth him out of them all.—PSALM 34:19.

From the above it would seem that it is God's will that we should bear afflictions, and, to a certain extent, pain and suffering. That is, a certain amount of trial and affliction seems to be best for poor weak humanity. Don't let me be misunderstood here. God is our father, and we are his children. Our best well-being seems to demand that we should come to him often. We should make him—or his Son—our friend and counselor. If we had good health and strength, and success in every thing everywhere, we should become proud, overbearing, and perhaps indifferent and lazy. I am sure of it, for I have oftentimes been conscious that, when I am relieved of responsibility, pain, and trials, I *forget* to be thankful. Yes, I forget the great God above, and what I owe to him; therefore, in the language of our text, we are to recognize that "many are the afflictions of the righteous;" and these afflictions are not *always* because we have done wrong. The tornado that blows down our buildings and does us injury is certainly no fault of ours. It is something we can not very well help or prevent; neither does it necessarily follow that it is because we are wicked. A great many of our afflictions and sufferings do come because of our own sinfulness, but not necessarily *all* of them.

Now, let us not forget the last half of our text: "But the Lord delivereth him out of them all." That is a pretty broad promise, my friends. No matter what overtakes us, nor whose fault it is, the promise is that the Lord can and *will* deliver his people out of *all* of these things.

Since my talks in regard to doctoring without medicine, and especially since the little illustration I gave you a short time ago, how Mrs. Root was given relief in answer to prayer (when medicines and doctors seemed to be powerless), I have not only had great numbers of kind letters, but several books have been sent me in regard to this matter. One that attracts my attention most of all is a little book of about 250 pages, by E. E. Byrum, of Grand Junction, Mich. I see the price marked on the cover is 25 cts. The title of this book is "Divine Healing of Soul and Body." This title of itself awakened my interest, as you might feel sure it would. Now, I have read a large number of books already on this matter. Please do not feel hurt, dear friends, when I tell you I have felt troubled about this "faith cure;" and especially have I felt troubled when I have known these people to carry these matters to such extremes that they neglected to send for a physician, in a critical case. Yes, I think there are instances where, instead of employing a surgeon to set a broken limb, the friends have relied on their prayers, and expected God to perform a miracle. Please pardon me for this plain talk, for I think this is about all I have to say in the way of fault-finding in regard to faith cure. Well, this little book of friend Byrum's seems to be very sensible and rational, even while it tells of wonderful cures that came about by simply trusting God, and holding fast to his promises. May I digress a little just here? Quite a good many religious books are sent to me to read. A good many of them, it seems to me, are a string of quotations from the Bible, without point or reason—at least, they do not appeal to *my* good sense or understanding. I absolutely can not have the patience to read them, and it troubles me to think that other people should commend a book so very highly, when to me it has no connected idea. I wonder if any of the rest of you have had similar experiences. I have tried to think the fault was mine; but for some reason God has not given me a faculty to understand theological doctrines; or, in other words, it seems to me the dear friends who write these books and read them are *away off* from the track. They are wasting their paper and time and ink on things that are comparatively unimportant. I have been in the habit of giving some of these books to the pastor of our church. Very likely God calls us to investigate along different lines; and what interests one does not interest another.

Now let me go back to the little book, "Divine Healing of Soul and Body." Friend Byrum quotes scripture texts right along, but he uses them in a plain, matter-of-fact, sensible way. He uses the texts as I would use a hammer, saw, or crowbar. They mean something, and carry conviction. The first part of the book is devoted to the healing of the soul; and this, surely, is a plain, common-sense idea. A man can not expect God to heal his body when he is in spiritual darkness. It has pained me exceedingly to hear certain persons who are not godly men, and not *praying* men, talk "Christian science." Yes, and I think there are those of this class who advertise to pray for sick people for a certain sum of money—say five or ten dollars. Such things seem to me "just awful." I know it has been urged that the laborer is worthy of his hire, and that, where a good man devotes his time to the laying-on of hands, and prayer, and people get well, they should give something for his support. In fact, I have heard of those who make no charge whatever for this sort of treatment, but tell their patients after they get well they can give them what they choose. This may seem to be very fair; but, notwithstanding, I do not feel satisfied that it is the right thing to do. Our Savior never received any sort of recompense for his divine healing; and if it be true that God has seen fit in these latter days to commission any human being to heal in like manner, I should say let him shun even the *appearance* of evil by refusing to accept pay. He who feedeth the ravens can supply the wants of such a child of his. Mueller, in his great work in London, went to God, and to him only, for help.

Permit me to say right here that a good friend in California has felt very much hurt because of what I said about Schlatter and his alleged cures. Schlatter never received any equivalent, if I am correct, for what he accomplished in the way of healing; and this one thing gave him his great celebrity and wonderful power. Had he at the same time been an evangelist—had he been exhorting people to righteousness and godly living, and had he done spiritual healing along with the other, I should have been ready to admit that God had seen fit to give him miraculous power. As it was, I could not learn that he had raised the standard of godliness anywhere. Those he healed were not even told to "go in peace, and sin no more." From all the evidence I could get I was led to believe that people imagined themselves healed, just as they had imagined themselves benefited by that innocent and senseless toy, Electropoise (it is the *machine*, mind you, that I call innocent, and not the proprietors of the thing nor the papers that accepted the advertisement of it).

Now, before I finish what I have to say in regard to "Divine Healing," let me notice another book — a much larger one — entitled "Science of Living; the New Gospel of Health." So far as I can make out, the great point in this last book is, that people should "go with-

out their breakfast." This comes on the ground, as you may know, of the Battle Creek doctrine of two meals a day. When I read the testimonials from the people who had been cured, it brought to mind a little newspaper squib of years ago, and it makes me smile again when I think of it. The title of the squib was, "How to be Happy." The directions were very plain and simple; viz., "Go without your breakfast, and see if you don't feel happy when dinner-time comes." And I have not a doubt but there is a grander truth embodied in the above than the writer of it ever *dreamed* of. This new "gospel of health" says when you don't feel a vigorous appetite for your breakfast, skip it. After a little time, when poor, patient, and docile Dame Nature gets used to the program, you will not only feel just as well, but ever so much better. No doubt of it. The starvation cure is probably as old as the hills; but after having tried both ways pretty faithfully, I would say, instead of eating *nothing at all* for breakfast, eat just lean beefsteak, and nothing else—not even a crumb of bread nor a drop of tea or coffee. I have not the space to review this book, by Edward H. Dewey, M. D.,* but I must give you just one point made by the author. Before commencing the practice of medicine he served an apprenticeship in a drugstore; and having a natural bent toward the matter of curing diseases he made it quite a study; and he says that, boy as he was, after several years in the drug business he noticed this: People came for remedies, who were afflicted with various acute diseases; and he was surprised to find out that, no matter *what remedy* they purchased, they, as a rule, *got well;* and then, of course, ascribed their recovery to the medicine they took. No matter what the medicine, the man using it was almost always *cured.* One whole side of the drugstore was occupied with various patent medicines piled up on the shelves. They *all* did good. Oh, dear me! Did it ever occur to you, my dear friends, that *Nature* performs a cure, and the dosing gets the credit? Now, is it not true that here lies the explanation, not only of Electropoise, Schlatter, "pink pills, "safe cure," and this whole long catalog, and the greater part of the remedies to be found in drugstores? This is the conclusion of an honest Christian physician, who has had a large life-long practice. He gives us a history of his experiences, through this large book of over 320 pages, and now comes out and tells people to give up drugs, and, when they are sick, *go without their breakfast.* Of course, he is most emphatic against the use of alcohol, tobacco, and every thing along in that line.

Now, dear reader, with your permission I want *again* to get back to "Divine Healing." This little book is sensible. If it has any fault it is that it urges too strongly, if such a thing were possible, that we shall trust in God, and go to him direct, no matter what troubles beset or assail us. If that does not do, follow the injunction of James 5:13-15. Now, if he dropped it right there I should be suspicious of his teachings. But he does not. One chapter is headed, "Hindrances to Healing." In this chapter he speaks of the *absolute* importance of the one who expects divine healing of being *pure in heart* and *clean* in his habits. He says:

"Men sometimes apply for healing of dyspepsia, etc., caused by the use of tobacco, expecting to continue the filthy habit."

And again:

"Women suffering from some dreadful trouble brought on by lacing and wearing of corsets too often desire to be healed, but are not willing to remove the cause."

And still again:

"Persons practicing filthy habits, abusers of themselves, etc., call on God to heal them, and yet will not turn from that which makes themselves *self-murderers.* Is it any wonder that the world says faith healing is a failure?"

I would add that, before a man can consistently expect that God shall heal him, he must stop defrauding or trying to get ahead of his neighbor in *any* unfair way. He must be striving earnestly day by day to lead a consistent Christian life. There is one chapter entitled "The Use of Medicine." He says, "Medicines are made for two classes of people—those who are not acquainted with God, and those of his children who are afraid to trust him." In the same chapter occurs the following:

"What about broken bones?"

"In such cases, if no one present were capable of setting it properly, I would call a physician or surgeon, if necessary, to set it, and ask the Lord to heal it."

The friend who wrote me from California (mentioned above) criticised me severely for my inconsistency in giving Mrs. Root the poisonous drug chloral right after the very plain and unmistakable answer to prayer, where she was given sleep simply by my kneeling by the bedside when all the doctor's remedies failed. My answer to this is, that I had also been praying that God would give the doctor wisdom and understanding in doing his part in the matter. I myself should have preferred that she should not have had the chloral. The doctor was sure it would be needed at about this stage of the disease, and I did not feel like taking the responsibility of countermanding the doctor's orders right at that crisis of her sickness. Perhaps I erred in want of faith. If so, I hope the Lord will forgive me. By the way, Mrs. Root entirely agrees with me in regard to the value of medicine. She thinks now that possibly she might have got along just as well with less medicine; yet we do not feel like setting our opinion above that of an honest and intelligent family physician.

In this little book friend Byrum gives us experiences of large numbers of people scattered all over our land, who have been healed by simply making their troubles the subject of prayer. I was much interested in seeing the large number of testimonials from dyspeptics,* and those who have heretofore been unable to eat ordinary food. After reading the book the first evening, I prayed earnestly that God would,

* If any of you should want this book, send $2.25 to the Henry Bill Publishing Co., Norwich, Ct.

* These people ate with impunity things that had been formerly hurtful, by simply asking God to remove the trouble, to give them healthy assimilation and digestion. Now, a beautiful thought comes in right here: These subjects of divine healing were not cured by praying once about the matter, nor once a month. Day by day they asked God to give them healthy digestion. Very likely it was done before partaking of each meal. Now, where we sit down to the table, and somebody asks a blessing, we often hear the phrase, "O Lord, bless this food to our use" or some similar expression. It never occurred to me till just recently that this asking a blessing upon our food, or "saying grace," as it is sometimes called, might and should include asking God to help us in our digestion. When we do this, of course we should do every thing in our power to help ourselves; and especially should we guard against the temptation to overeat, or to eat unwisely of rich foods that happen to please the taste. Those who are seeking holiness certainly can not consistently be gluttonous; and thus you see it is almost absolutely necessary that spiritual healing, or healing of the soul, should come first, and the healing of the body afterward; and this is the way in which the little book, "Divine Healing," has put the matter.

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if consistent with his will, permit me to eat such food as other people do. The next morning, and for almost a week afterward, I ate what I pleased, and enjoyed better health than I have enjoyed for years, doing hard severe mental labor in the office right along every day. Now, let us go slow in this matter, and be fair about it. I said I ate "what I pleased." Well, what I "pleased" was two-thirds or three-fourths lean meat as heretofore. The other was zwieback and breakfast food well cooked, with a very little very nice new white maple sugar. I hope friend Byrum will forgive me for my want of faith when I say the pure sugar from the maple *may not* have harmed me at any other time. If so, then, in answer to my prayer, I had made a most pleasant discovery. At the end of the week I ventured to eat some hot bread, or gems, made of whole-wheat flour and baking-powder. In a few hours I was back again with one of my worst experiences with indigestion and headache. I can only *guess* it was the hot cakes. Friend Byrum would doubtless say it was a lack of faith; for, to tell the truth, I was a little backward in confessing to my friends that, in answer to prayer, I was even using *sugar* three times a day, absolutely without injury or any bad symptom whatever.* You know one naturally feels a little delicate about telling spiritual experiences like these. The family wondered at my eating these things with impunity, but I had not explained it to any of them as I had to Mrs. Root. I am happy to say this morning that I have my full health and perfect digestion once more; but for the last three meals I have eaten *pure lean meat*, nothing else. Now, has God answered my many prayers in regard to this matter of diet by making known to me that a diet containing neither starch nor sugar will relieve these troubles? or am I lacking in faith because I do not stand out boldly and eat what other people do, trusting God, and *him alone*, to keep me in health? You see, this matter about using *tobacco*, and asking God to heal, may be carried a little farther, and have it include tea and coffee, fat meats, rank vegetables that you know do not agree with you, etc. You see, we are but *human* in *all* these things. Again and again I am reminded of that oft-recurring sentence in my prayers of late:

I am weak, but thou art mighty.

VEGETABLES, ETC., UNDER GLASS, IN THE MONTH OF FEBRUARY.

I do not know just why it is, but there is something wonderfully fascinating to me in raising stuff during the latter part of the winter, under protection. Let me give the following as an illustration: Yesterday, Feb. 12, the Weather Bureau predicted rain and warmer weather. I told the boys to be ready in the morning to pull all the sashes off from every thing, especially if it was a *warm* rain. By the time I had finished my breakfast, there were the plants looking happy, and doubtless feeling happy, under the influence of what might be called a summer shower in the winter time. The long bed of onion-plants, that had been shut up under a freeze when only five degrees above zero, were just hungry for fresh air and fresh soft water, so *they* looked smiling. The Wakefield cabbage were just out of the ground. The radishes, being a little more hardy, were somewhat ahead of them. Cold-frame cabbage-plants had brightened up and really made quite a little growth since the last time they were uncovered. The Marshall strawberry-plants, set just a foot apart in the fall, were full of buds and blossoms. Many of the blossoms were just opening. Our transplanted lettuce got through the freeze all right, and every plant was alive. Spinach, onions, and other things, were also happy. The pie-plant that I wrote about in our last issue, instead of vainly trying to push up the glass sashes had stretched out their broad leaves, and they too looked grateful for the rain, and for the room to grow.

After the plants were all uncovered, a new bed was prepared with nice fresh dirt. On top of it we put an inch or so of fresh sifted horse manure; on top of this, half an inch of tobacco dust. Then the ground was marked out with a marker similar to the one shown on page 76, except that the knobs were 7 inches apart, and some nice lettuce-plants were hastily taken out of the greenhouse and put in. Before the bed was half-filled, however, the weather had become snowy and sleety. Then was when my enjoyment came in, by taking great care and pains to cover every thing tight and snug for another siege of winter. By the way, how strange it is that so few can be found who will do a simple thing like covering plants with sashes, and do it well and thoroughly! Many a time valuable plants have been lost just because the boys did not crowd the sashes up tight. A crack big enough to let a knife-blade through will let in frost.

During the recent mild weather we have been covering the outside board of our beds with tarred paper. To protect the tarred paper, we nailed on some cheap shingles. This makes the bed look tidy, and keeps out all the frost. Now see that the top edge of the bed is planed so flat and level that the sashes, especially the end ones, shut down almost air-tight. As a precaution to see that the sashes are "tight up," as I remarked above, it is a good idea to go to one of the beds, after they are all on, and crowd against the outside sash hard enough to move the whole 14 say half an inch. This effectually shuts up any little crevice; and if a high wind comes, each sash is pinched so tight between its fellows that there is little prospect of even a small hurricane getting a sash loose unless it commences with the end ones. Put a board across the end ones, with a big stone on top, and they are all pretty secure.

Now, perhaps you do not see where the enjoyment comes in, of covering up plants out in the sleet and storm. If so, it is because you do not *love* the plants. The great secret of success in any of these rural industries is in having a genuine love for the things you handle and are trying to make grow. As I look out of the window now, and see the snowy sleet that is accumulating over the sashes, I think of my pets underneath, so warm and comfortable; and I verily believe they are happy, after their fashion, and that makes me happy, especially when

* I suppose Dr. Lewis would say sugar was the cause of all the mischief, or nearly all; that the trouble had been cumulative, as when medicines are taken repeatedly, without producing any effect; the mischief had been piling up without my being sensible of it, and the result was as given. I do not think, however, this can be true. Until I ate the hot cakes, my health had been perfect. Even during this zero weather that we have been having for a week, I could stay in the open air, right in the wind, and work without mittens or any thing else on my hands; and day after day there seemed to be a spiritual uplifting so that I could say almost continually, "Praise God, from whom all blessings flow."

I realize the promise, "In due time ye shall reap if ye faint not." Our pie-plant is bringing 20 cts. per lb., and our lettuce nearly twice that, and we have not a sufficient supply of either.

Feb. 22.—Since the above was written we have had a week or ten days of very cold weather; in fact, the thermometer has, a good deal of the time, been between 5 and 10 degrees below zero; and, to tell the truth, there has been a little more anxiety than real enjoyment in getting the plants through the blizzard. The Thoroughbred potatoes were, a good many of them, "scorched." My two Tonga beans were killed dead because I forgot to put something over them; and the greater part of our extra early tomato-plants were lost. As this happened, however, as early as the 15th or 20th of February, by getting in a lot more seed promptly we shall probably not suffer very much loss. I am happy to say, however, that the strawberry-plants in that sub-irrigation bed described on p. 29, Jan. 1, came through almost without injury. They are full of buds and blossoms, and are doing just splendidly. The bed is working beautifully. In fact, whenever I go near it I have one of my "pleasant surprises." Our other beds, even with exhaust steam under them, suffered more or less; and a great part of the damage was caused just because the boys who put on sashes did not shove them up tight together; and I allowed this to pass unnoticed, even after my emphatic directions in regard to putting sash "tight up." I wonder how old a body has to be in order to learn to look after things, and to do things as well as he knows they ought to be done.

About the 5th of February the ground thawed up enough so that we went out in the field and dug quite a lot of winter onions. The best of them were bunched up and sold. The smaller ones were separated and planted in one of the greenhouses, 3 inches apart. They were put close up to one of the sashes that come down so near the bed that the onion-tops now touch the glass. I put them in this place because almost every thing else was liable to be frozen in that particular corner. But in just two weeks these onions were just handsome. The light freezing they had been getting almost every night seemed to do them good rather than harm, and they are now the finest lot of bunch onions I think I ever raised under glass. In my former experiments I had always kept them too warm. They do not seem to need any bottom heat, and only a little overhead. These were old onions that had borne a crop of top sets for several years. We took the large bunches and separated them, putting one in a place.

MAULE'S EARLY THOROUGHBRED POTATO AT THE OHIO EXPERIMENT STATION.

We copy the following from a recent issue of the *Practical Farmer:*

Prof. W. J. Green, of the Ohio Agricultural Experiment Station, writes: We received last spring a small quantity of Maule's Early Thoroughbred potato, and we are glad to report that it has done well here: 14 hills yielded 24¼ pounds, or at the rate of 357 bushels per acre. This was on new ground, cleared one year, but the season was unfavorable, and it may be considered a good yield. Of course this is a calculated yield per acre, and I should feel more confidence in the result if we had at least two rows across the field, which is our usual practice. I believe this is a good variety, however, and will stand well up to the head of the list in productiveness. The plants are vigorous, and the potatoes are all that can be desired as regards the size and appearance.

I wish friend Green would tell us something about the comparative earliness of this potato. I believe friend Terry said he did not think it quite as early as the Early Ohio; but as he had no Early Ohios side by side he had no means of telling very accurately. It is an early potato, a wonderful yielder, of most excellent quality. On these three points, with the testimony we have had, we feel at least tolerably certain.

We find the following at the head of Mr. Terry's article in the *Practical Farmer* for Feb. 15:

I hear that Mr. Everitt, in his seed catalog, has made use of what I wrote in *P. F.*, and what Mr. A. I. Root said in GLEANINGS about Mr. Wm. Henry Maule's new potato, since named "Maule's Early Thoroughbred," applying it to a potato of his own. Mr. Everitt had no authority whatever for using my name or Mr. Root's in his catalog. I have never seen his potato, and never before heard of it.

THE CRAIG SEEDLING AT THE OHIO EXPERIMENT STATION.

Friend Root:—There seems to be a difference in opinion about the Craig in what I wrote in GLEANINGS of Nov. 1, and which the newspaper bulletin of the Experiment Station published later. Now, if I were in the wrong I would try to make it right; but when I saw the bulletin I was as much surprised as any one, for I had no hand in making it. I went to Prof. Green, and told him I thought he had not made a correct report of the Craig. After talking the matter over, and telling him what I thought was the cause of the small yield, he said he thought I was right, and was sorry that it was put as it was in the bulletin.

It is true, the Craig made a small yield here at the Station, but not because of its susceptibility to the blight, but because, being a late potato, and not being far along in its growth, it was hurt far worse by the blight. I believe the blight to be a contagious disease. We had a good illustration of this the past season, on the early potatoes. The blight started first, then spread to the variety patch; from there to the three late-planted patches, first to the one the nearest, then the one next nearest, and, last, to the one farthest away.

The Craig, being in the variety patch, was surrounded by a hundred other kinds that were blighting, and I do not believe it possible for any variety to escape the blight under such circumstances, and not be killed by blight.

When I was at the Medina Co. Fair, about Sept. 1, I was in your field of Craigs several times, and could not find any blight on them, although the Rural New-Yorker and Banner, which I have always considered as free from blight as any kinds I know of, were badly blighted. On the Station grounds the Craig stood up as long as these kinds, which is just what I said in the Nov. 1st GLEANINGS; but its small yield was owing to the fact that it was a very late potato in a field where it could not escape the blight, and not because of "its susceptibility to the blight." I will also say that the seed potato from your field, where there is no blight, is worth a great deal more than from where they were blighted.

Wooster, O., Feb. 15. EDWIN C. GREEN.

Many thanks, friend G., for giving the Craig its just dues, and also for the facts you give us in regard to blight in potatoes generally. I may add that our Craigs were just as bright and green, and free from any symptom whatever of blight or any other disease, until the time the frost put an end to their growth, so our friends can rest assured that the seed we offer was grown entirely free from this troublesome malady.

THE SOJA BEAN: FROM THE OHIO EXPERIMENT STATION.

Friend Root:—Of all the forage crops that have been tried on the Experiment Farm, I know of none that seems more promising than these beans from Japan. While they may never take the place of corn, yet they have one point in their favor above corn; and that is, they belong to the clover family, and have the power of collecting the nitrogen from the air by the tubercles that grow on their roots; and so when you cut a crop and feed it, the land is better off for nitrogen than it was before.

The seed is good size, and comes up quickly, and soon covers the ground, keeping the weeds down al-

most entirely. Crimson clover was sown with them here last April, and was all smothered out except around the edges.

I was surprised that cows would eat them readily when green, for, as a rule, cattle do not care for any thing in the bean line; and no doubt if they do, sheep would be very fond of them, and perhaps they could be fed to horses.

They are very rich in muscle-forming substance, and the quantity that can be grown on an acre is very large. The yield of ten tons per acre, green, was made both by the green and yellow soja bean on the Station ground last summer.

The green, being the earliest, comes nearer ripening the bean than does the yellow, which is very late.

The value of these beans for plowing under has not been determined yet, but no doubt is very great

These are some of the good points, and now for the bad ones:

It is extremely doubtful whether the seed can be ripened in this climate; so if we have to send south for it, it will make it expensive.

The crop being so heavy and full of water, it will make it hard to handle, and hard to cure and store when dry. No doubt there are other good points and drawbacks that will be found out where the bean is grown. EDWIN C. GREEN.

Wooster, O.

RESTORING A WORN-OUT FARM.

Friend Root:—On page 119 a West Virginia correspondent asks for information in regard to the restoration of a worn-out farm. Having just spent two years at that kind of work on a somewhat similar soil, I feel that I could be of service if I had the party at hand. In the first place, his farm having been in pasture must have *some* humus—mine had none. The presence of redtop would seem to indicate excess of moisture; but the man wants to realize *something* on his investment this season. If the case were mine I should not hesitate to plant some of the best portions with early potatoes if his market would guarantee 40 or 50 cts. per bushel. He will find a subsoil plow an excellent tool on that farm, as I did.

Regarding chemicals, it seems to me rather late in the day for a man, however intelligent, to say in effect that certain substances are plant-food in one section and not plant-food in another. We are using about 35 to 40 tons of high-grade fertilizers yearly, and I grew a paying crop of potatoes and onions on ground so poor that it produced only 12 bushels of wheat per acre, 1500 lbs. per acre to potatoes, 2000 for onions. It is a fact that fertilizers require a greater amount of moisture to dissolve them, and growing crops do not so readily assimilate the nutriment contained in them as from *thoroughly rotted* stable manure.

It is also a fact that the presence of humus, or decomposed vegetable matter in the soil, is a great assistance in making available the plant-food contained in fertilizers by its well-known ability to retain large quantities of soil moisture. Should your correspondent have a season unusually dry next summer, he will probably obtain but little benefit from fertilizers, and probably less still from unfermented stable manure. I have found three instances where fertilizers utterly failed to give returns: One was when we had no rain from start to finish; another was when there was a total lack of vegetable matter in the soil, coupled with no rain; and the third was that of a party who claimed that stable manure always helped his crops, but fertilizers never. Five cents' worth of litmus paper revealed the fact that his soil contained an excess of acid, that to a certain extent was neutralized by the alkali of the manure.

But after all, your West Virginia friend will find that cow peas, acid phosphate, and nitrate of potash, will be the combination that ultimately restores the wasted fertility of his farm in the most economical manner.

I find I can get as good results from cow peas in one year as from clover in two; besides, there are no failures to seed, clover for us frequently burning off; and last year, a fairly good growth one year old burned to the earth, and died, while cow peas (sown right through the center for comparison) were growing. With cow peas at $1.25 per bushel, 1¼ bushels per acre, the use of acid phosphate, say $15 per ton delivered; nitrate of potash, $45.00 per ton delivered; 400 lbs. phosphate, 200 lbs. of potash, makes a fair dressing. It will pay to use twice this much, as the peas will convert it all into elaborate material for next season's crop. M. GARRAHAN.

Kingston, Pa., Feb. 6.

I am very glad indeed to be corrected in what I said about chemical fertilizers, friend G.; at least, I am glad to know that *you* have succeeded with them. Our Ohio Experiment Station admits that they do good; but still they claim that, at the present prices ordinary farm products are bringing, chemical manures will cost more than the extra product will bring. I am very glad indeed to know that you in your locality have been able to make them *pay;* and if they help to bring a farm up to a productive condition I should not mind it, even if they did not always pay; and I am very glad to hear your good report in regard to the cow pea as a soil-fertilizer. If I am correct, I have seen them advertised in some of the agricultural papers for only $1.00 per bushel for seed.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

Bless the Lord, O my soul, who forgiveth all thine iniquities; who healeth all thy diseases.—PSALM 103:3.

ALSIKE AND OTHER CLOVER SEED.

Now is the time to sow it if you want to be sure of a good stand. See directions on page 154 of our last issue. We have a fine lot of nice new seed, at the very lowest prices. We are also ready to give you directions in regard to sowing and care of any of the clovers now before the bee-keeping and farming public.

NEW AND VALUABLE VARIETIES OF SEED POTATOES.

When this reaches you we shall be prepared to ship at our risk to any locality that lies south of our own; that is, where parties, for special reasons, want their potatoes *right away* for extra early planting, in the greenhouse or outdoors. Remember, we have pretty much all the best varieties before the potato-growing public, and our prices run all the way from 25 *cents* a *bushel* up to $25.00 a *barrel.* We shall be glad to send you our latest revised price list of potatoes.

PLEASANT SURPRISES.

This one came along in line with a pleasant glimpse of human nature. A farmer, a few miles away, wrote me he had some Carman potatoes No. 1, and I agreed to give him 80 cts. a bushel for them. He said he brought me ten bushels; but when we came to put them into Terry bushel boxes, there was a good plump twelve bushels. He explained it by saying he heaped up the basket in the same way the hucksters in the Cleveland market insisted on his heaping it up. I asked him why he did not put them on the scales and give them an even 60 lbs. He said they refused to buy them that way. He gave me the same bushel he had been giving them; and I really enjoyed giving him $1.60 more than he expected, and, in fact, more than he asked. This is a refreshing experience on the *other* side of what I said a few months ago about giving scant measure when you are selling potatoes. By the way, I wonder if the hucksters in *other* markets are guilty of tricks like the above Our potato-growers are having hard times enough this season of low prices, without being swindled by making them give *more* than legal measure.

A NEW KIND OF POTATO-BUG.

I am not sure, after all, that there *is* any new kind; but a quotation from friend Swinson's circular on second-crop potatoes, which appears on page 154 of our last issue, would rather look as if there were a kind of bug down south that deposit their eggs in the potatoes. I remember that, when I read it, it seemed rather strange to me, but something called my attention, and it was allowed to go into print. I presume friend Swinson means that his seed potatoes were raised on ground not infested at any season with potato-bugs. Of course, they deposit their eggs on the leaves of the potato-plant—that is, the regular Colorado bug does; and I think I have

heard that the bugs themselves crawl up out of the ground in the spring. I feel ashamed that any thing of this kind was allowed to get into print. Perhaps friend S. will be so kind as to tell us exactly what he does mean by that clause in his circular.

THE SOJA, OR JAPAN BEAN (THE AMERICAN COFFEE-BERRY).

We can furnish this bean, described by Prof. Green on page 188, at 10 cts. per lb.; $1.00 per peck, or $3.00 per bushel. About one bushel (60 lbs.) is needed per acre. With the length of time that this bean (or coffee-berry) has been before the people, it seems to me somebody ought to produce it a very much less price than the above. If any of our readers can supply us so as to sell it at a lower figure, we should be very glad indeed to hear from them.

THE GOLDEN TANKARD MANGEL WURTZEL.

We notice quite a good many farmers are giving the preference to this beet mangel, for feeding to stock, and we have accordingly made arrangements to furnish the seed in quantities at the following extremely low prices: 1 lb., 15 cts.; 10 lbs. or more, 12 cts. per lb.; 20 lbs. or more, only 10 cts. per lb. Our well-known Mammoth long red mangel, until further notice, will be at the above low prices also. If you get the seed in early, on tolerably good land, it is not a very big job to harvest 30 tons to the acre, and *40 tons* have been raised. Get them started early, and you will thus get ahead of the most troublesome weeds. Please mention this special price when you send in your order.

MAPLE SUGAR AND MAPLE SYRUP: HOW TO MAKE IT GO A GOOD WAY.

Almost every spring it to our custom to send samples of the first-run maple sugar to relatives in different localities where maple sugar does not "grow." Well, some friends down in Missouri have a fashion of making theirs hold out. It is this way: They make a syrup of granulated sugar, say something like the artificial honey found on page 75. Then to give it a flavor they add some of the new first-run sugar—of course, the more the better. But they say they like syrup ½ or ⅔ granulated sugar just as well as or better than the pure maple, and it is very much cheaper. Now, mind you, I am not giving a hint to swindlers and adulterators of food products. Everybody who orders and pays for pure maple syrup should have it. If he wants to dilute it with something cheaper in his own household it is his privilege. We see by a recent report that the maple sugar and syrup of Ohio, almost without exception, have been pronounced pure products of the maple-tree, and nothing else. I believe the State or government chemists appointed for the purpose have now ready means for determining whether sugar or syrup is purely from the maple-tree or from some other source. Now, then, friends, it is expensive to ship syrup long distances. There is a risk of leakage besides. But maple sugar can be shipped anywhere. Take this maple sugar and use it to flavor your sugar syrup or artificial honey. If you have never tried it we can send you some little cakes by mail to give you a taste; and I think that, after trying it, you will agree with me that it is away ahead of any candies you can buy at the candy-stores, and much more healthful for the children. We will mail you ¼ lb. of the first-run sugar for 15 cts. You will notice the greater part of this expense is for postage and packing. For prices of maple sugar by the quantity, see our last issue.

THE SEED AND PLANT CATALOGS FOR 1896.

I suppose you have all enjoyed looking them over; and I confess I feel a little proud to notice not only the wonderful skill of the printers and engravers, but also to see what progress is being made in the way of developing and working up to its utmost limit every thing in the line of fruits and vegetables. Surely the gardening interests of this nation of ours are no small thing at the present day. And then it concerns so much the homes of our land! I am pleased to note that the spread-eagle exaggeration is giving way to actual facts and honest truth. In fact, quite a number of the seed catalogs confine themselves almost entirely to actual *photographs* of what their seeds have produced. Foremost in this line is the catalog of Johnson & Stokes, of Philadelphia. On the back cover of their new catalog they have actually given us a photograph done up in colors. One can get a great amount of information from these catalogs, especially those pertaining to small-fruit culture.

By the way, there are so many catalogs of strawberries and small fruits, that I have actually been afraid the friends would not all be able to sell their stuff. A few days ago I was thinking I wished I had somebody or something to tell me how to take care of my apple orchard. I hadn't time to read a whole book, and I thought I should really like two or three pages of plain simple directions, and I found it exactly in a leaflet that came from the Stark Brothers' nursery, Louisiana, Mo. This leaf of two pages told how to plant the trees, how to prune them, and what to do with the borers; how to prevent the sun-scald, and, in brief, about all the things I wanted to know; and with their large experience they can probably tell us what is really worth while to do and what is not. I hope every good honest reliable person or firm who sends out a catalog of strawberries, potatoes, small fruits, or garden seeds, will receive a just and fair reward for their labor. We should like our own proper share of business; but God knows we do not want it all to the exclusion of everybody else.

SPECIAL NOTICES FROM BUSINESS MANAGER

DEALERS' PRICE LISTS.

As we go to press we are completing our dealers' price list for 1896, which will be mailed to the names on our list within at least 10 days. If those handling bee-keepers' supplies, and entitled to this list, do not receive it during that time, will drop us a request we shall be pleased to mail it. If you have not had the list before, send with request some evidence entitling you to these prices, as they are intended only for legitimate agents and dealers, and those who buy to supply others.

COMB-FOUNDATION MACHINES.

As we have a large stock of comb-foundation machines on hand, of extra fine quality, which we desire to reduce, we offer them for the next 60 days at 10 per cent reduction from present list price. We have a few that we will sell at the old list price, which is, $15.00 for 6-inch; $20 for 10-inch; $30 for 12-inch, and the 14 inch round cell we will sell at $32.00. To those interested, desiring samples from these mills, we shall be pleased to send them on request. If in need of a mill, this is your opportunity.

SECOND-HAND FOUNDATION-MILLS.

Six-inch hex., No 1467. Just right for thin foundation. Almost as good as new. Price $12.00.

Six-inch hex., No. 1521. All right for thin surplus foundation, and in good order, but comes from the rolls a little hard. Price $6.00.

Six-inch hex., P. P. Vandervort. Price $9.00. A good mill for the money.

Six-inch hex., Q. Q. Vandervort. Price $5.00. This has several cells bruised which leaves a streak in the foundation; otherwise it does good work.

Ten-inch round cell, old style, M. M. Price $9.00. This mill was made some time ago, and is not of course equal to mills we are making now, but it will answer nicely for heavy foundation.

Ten-inch round cell, old style, N. N. Price $10.00. Similar to the preceding but in better condition.

Ten-inch Pelham mill. Price $8.00. This is also suitable for heavy foundation. Deep walls with thin base.

CARLOAD SHIPMENTS.

Since our last report we have shipped a large carload of goods to McClure Bros., Las Cruces, N. Mex.; another to Geo E. Hilton, Fremont, Mich.; one to Bartelds & Co., Denver, Colo.; one to Walter S. Pouder, Indianapolis, Ind.; one to Wm. A. Selser, Philadelphia, Pa., and one to John Nebel & Son., High Hill, Mo. We have also loaded a large car for export to England, consisting of sections, frames, separators, and new-process foundation. We are loading a car for Fowler, Colo., and have orders booked for several more cars to go within the next ten days to two weeks. We have made a contract with the Sanitarium Health Food Co., Battle Creek,

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Mich., to supply them with boxes for their health foods, and have already shipped them several carloads. They require a car or more a month. This contract required the purchase of a box-printing press, which we have added to our equipment, and will hereafter use on much of our bee-hive work. We are prepared to print up shipping-cases with the name and address of the user, if taken in sufficient quantities. This would make a permanent advertisement, of lasting benefit. Our shipping-cases are already so popular that we sent 3000 in one shipment to New Mexico, and are sending over 2000 in a car to California.

DANZENBAKER HIVES AND SECTIONS.

As there is considerable interest manifest in Danzenbaker's 10-32 comb-honey hive, described in Jan. 15th GLEANINGS; and as Mr. Danzenbaker has arranged with us as exclusive manufacturers of his hives and sections, and he being situated so far out of the way, we have arranged to receive and execute orders from all who wish to try this hive. We do not advise any one to invest in large numbers this season till you have given a few a trial. After having tried them, if the claims for it are sustained we will no doubt catalog the hive next season.

There are those who desire to try the open-corner sections, 3⅞ x 5 x 7 to foot or 1⅞, and use them on the regular hives. We are arranging to accommodate these, and will illustrate in next issue an arrangement to use these sections in the regular 8-frame Dove. super. It is a section-holder with ¼-inch bottom, 5/16-inch ends, to go crosswise the super, and hold 3 sections; 10 of these, with follower and wedge, fill a super; and to provide for the extra depth of the section a ⅜-inch rim may be placed on top or bottom of super, if you preserve a bee-space above the sections, or a ¼ inch rim if you wish the sections to come even with the top of super. Where paraffine paper is used to cover over sections, and they are used only one tier high, we think the ½-in. rim preferable. Tin strips will have to be nailed on the lower inside edge of side of super, instead of end, as at present, to support the section-holders. The open-corner sections, both 4¼x4¼ and 3⅞x5, are quoted in our March 1st catalog, which has been mailed to all GLEANINGS readers. These rims, tins, and section-holders we offer at following prices:

20-inch flat tins, 1c each; 60c per 100.
Rims, ⅜ or ⅞ inch deep, 3c each; 25c for 10.
Section-holders, 15c for 10; $1.20 per 100.
Separators, 4¼x12, wood, 50c per 100; wax-paper, 40c per 100; separators, 5x12, slotted, 60c per 100.
Waxed-paper quilts, 12x18, 2c each; 10 for 15c.

ODD LOTS OF SECTIONS.

There have been so many of these lots disposed of from the list published Jan. 15th that we give here the list corrected to date.

75,000 4¼x4¼x1⅛, open top and bottom, polished, $2.00 per 1000; 3000, $5.00; 5000, $8.00; 10,000, $15.00.
12,000 4¼x4¼x1¼, open 4 sides, polished, same price.
7000 4¼x4¼x1 1/16, open 4 sides, white, same price.
20,000 4¼x4¼x1⅞, open 4 sides, cream, same price.
875 4¼x4¼x1⅞, 4-piece, Dovtailed, $2.00 for lot.
2000 4¼x4¼x7 to ft., 4-piece, Dov'd, $2.50 per 1000.
500 4¼x4¼x1 1/16, 4-piece, Dov'd, $1.25 for lot.
500 4¼x4¼x1 1/16, open 2 sides, cream, 75c for lot.
50 4⅛x4½x1⅞, open 2 sides, white, 20c for lot.
50 4⅛x4⅛x1 7/8, open 4 sides, white, 20c for lot.
50 4½x4½x1½, open 2 sides, white, 20c for lot.
375 4½x4½x1⅞, open 2 sides, white, 75c for lot.
90 4½x4½x7 to ft., open 4 sides, white, 30c for lot.
500 4½x4½x1⅞, open 2 sides, white, $1.25 for lot.
1000 4½x4½x1⅞, cut for glass, cream, $1.50 for lot.
3625 5⅛x4 1/16x1 1/16, no openings, 1000, $1.50; lot, $4.00.
3000 5¼x6¼x1 1/16, open 2 sides, $2.50 per 1000.
4625 5¼x6¼x1⅞, open 2 sides, $2.50 per 1000.
450 5¼x6¼x1⅞, closed-top, $1.00 for lot.
9250 6¼x5¼x2, open 2 sides, $2.50 per 1000.
300 6¼x5¼x1⅞, closed-top, 75c for lot.
100 6¼x5¼x1 1/16, open 2 sides, 25c for lot.
2500 5 11/16x4 11/16x1 1/16, open 2 sides, cream, $1.50 per 1000, $3.00 for lot.
1000 6⅜x5x1⅞, open 2 sides, cream, $2.00 for lot.
500 5x6x1⅞, open 2 sides, white, $1.25 for lot.
120 6x5x2, closed-top, white, 35c for lot.
375 5¼x5¼x1 1/16, closed-top, white, $1.00 for lot.
75 5x5x1⅞, open 2 sides, white, 25c for lot.
1870 5⅝x4¼x1⅞, open 2 sides, cream, $3.00 for lot.
50 4⅞x4⅞x1⅞, open 2 sides, white, 15c for lot.
50 4x4½x1⅞, closed-top, cream, 15c for lot.

WANTED.—To send per mail 50 White Plume celery plants for 25 cts., or 100 for 50 cts., as a sample, to any gardener.
JOHN CRAYCRAFT, Astor Park, Fla.

WANTED. Wide frames with separators, 10-frame Simp. hives, sections, foundation, for seed potatoes. Irish Daisy, Orphan, R. N. Y. No. 2, Green Mountain, Early Maine, Early Northers. Price, 1 lb. 15c; bu. 45c; bbl. $1.25.
L. D. GALE, Stedman, N. Y.

Alfalfa, Crimson, and Alsike **Clover Seed.**
One or more lbs., by mail, 25 cts. Bushel, by freight or express, $6.00. Peck or more at bushel rates.
DR. C. L. PARKER, Onondaga, N. Y.
Please mention this paper.

A GREAT REDUCTION
in prices on *hives* and *sections*—see page 155, GLEANINGS, Feb. 15. Any change in prices made by the A. I. Root Co. we make also. We keep Root's goods: can fill your orders for them on short notice. Clover and Japanese buckwheat seed in stock. Send for 36-page catalog, free.
JOHN NEBEL & SON, High Hill, Mo.

Apiary of 90 Colonies,
1400 store combs, and every thing needed for business. Write for price and particulars.
H. F. DOLSON, New Paltz, N. Y.

Hives of Bees for Sale. I will sell a limited number of good colonies of bees this spring, in 10-frame Simplicity hives for $4 00 each, and 8-frame at $3.50 each. Queens bred from best imported stock.
JNO. A. THORNTON, Lima, Ill.

Wanted. 200 Colonies of bees or 4-frame nuclei, on Simplicity or Hoffman frames, in exchange for supplies to be shipped either from here or Medina O. Send for catalog.
Geo. E. Hilton, Fremont, Mich.

YELLOWZONES.

Fellow Bee-keepers.—Just for a moment stop thinking of bees, and give a thought to a matter of good health. Yellowzones are not a new sort of bees, but are yellow tablets, a remedy that will *cure* the common and serious complaints of yourself and family—the most generally useful and satisfactory medicine that it has been my fortune to use in a practice of 11 years. I have often, even recently, after using it several years, been astonished at its marvelous power to heal. Families who have used it call for it repeatedly, until I find that, instead of prescribing for them as formerly, I am simply selling them Yellowzones.

Having been formerly a bee-keeper myself, and a subscriber to GLEANINGS since it was first issued by "Novice" as a quarter y, 23 years ago, I have determined to offer this remedy to the GLEANINGS family, feeling assured that you will be as pleased with it as I have been, in all *fevers, headaches, colds, grip, rheumatism,* and *neuralgia;* or, more comprehensively, for *pain, fever,* and *nervousness* in *any* disease—in very fact, a general-utility remedy for the every-day ills of humanity, and the most *satisfactory* remedy you ever used; and of especial value just now while la grippe is prevalent.

It is not a cheap remedy, but *it cures,* and cures rapidly. It is pleasant to take, and every dose counts. Moreover, we guarantee to refund the price to any one not *entirely* satisfied.

We will mail them in boxes of 18 at 25 cts.; 6 boxes for $1 00 (not less than 6 at dollar rates), or if you scarcely have confidence in them, send 5 cts. for sample of six. We recommend the dollar purchase as most satisfactory. Let us show how well we can please you.

I take real pleasure in referring to Ernest R. Root as to my personal integrity.
W. B. HOUSE, M. D., Detour, Mich.
Please mention this paper.

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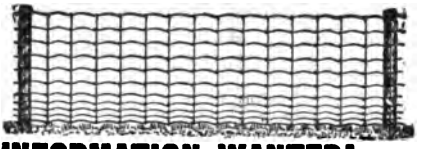


INFORMATION WANTED!

Anyone having knowledge of a general purpose wire fence, "just as good as the Page," will confer a favor by sending us full particulars. No hearsay evidence wanted, only actual tests count.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

☞In responding to this advertisement mention GLEANINGS.

Fruit Packages of All Kinds. Also **Bee-keepers' Supplies.**

We allow a liberal discount on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

Berlin Fruit Box Co., Berlin Heights, Erie Co., O.

ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ei

SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N.Y.

HATCH CHICKENS BY STEAM With the MODEL **Excelsior Incubator.**

Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other Hatcher. Lowest priced first-class Hatcher made. **GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.**

Circulars free. Send 6c. for Illus. Catalogue.

BASSWOOD TREES!

Orders booked now for spring delivery for **Nursery-grown Basswood Seedlings,** 5 to 9 inches high, at $2.00 per 100; 300 for $5.00; $15.00 per 1000.

Parties living east of the Mississippi River will be supplied direct from our nurseries in Ohio. Satisfaction guaranteed.

A. H. FITCH, 1509 Cooper St., Des Moines, Iowa.

Please mention this paper.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS. ROOT'S GOODS AT ROOT'S PRICES.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "**Practical Hints**" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Do You Want An Incubator?

An Honest Machine, Honestly Built.

New Double Regulator; Model Egg Tray

Sold Under a Positive Guarantee.

"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

In writing advertisers please mention this paper.

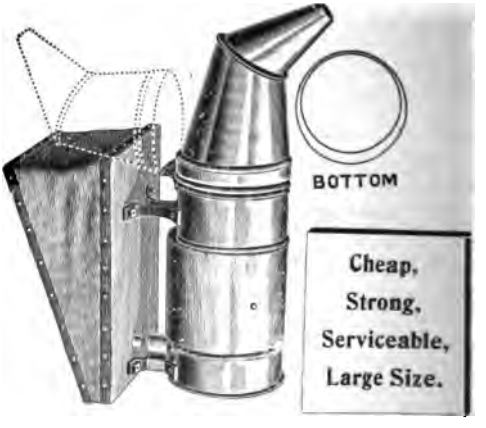
CASH FOR BEESWAX

Will pay 28c per lb. cash, or 30c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 33c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by *express*.

THE A. I. ROOT CO., Medina, O.

The New Cerneil Smeker.



JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Cornell principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

The Cornell smoker is a Dandy with a big D. I have been using it to-day on the crossest colony of bees I ever saw. I think I could drive a bulldog with it. S. R. AUSTIN.
Amityville, N. Y., Oct. 15.

Price $1.10, postpaid, or 85c if sent by express or freight with other goods.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

VOL. XXIV. MARCH 15, 1896. NO. 6.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. ROOT Co.
MEDINA, OHIO.

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR. C. C. MILLER.

CAN'T WAIT—hardly—to see bees come out of cellar.

EXCHANGE of virgin queens among bee-keepers is recommended in *B. B. J.*

MY ONE HIVE of bees outdoors had a nice fly Feb. 26, the first right good day for a flight since Nov. 10.

PHACELIA is much talked about by the French, not only as a house-plant but as a forage-plant. Has their kind of phacelia been tried this side the water?

My cellar was swept out for the first time Feb. 20, yielding a trifle more than a bushel of dead bees, loosely filled, and stroked measure. That from 157 colonies.

SEAL HONEY at 180° to keep from granulating, says Ernest, p. 181. R. McKnight, in *Review*, says 160°. Which is right? [Never tried 160°. It may answer just as well.—ED.]

IF A. B. ANTHONY learns to put sections in T supers as given by Emma Wilson, p. 179, 1895, he'll never again use the slow way given on page 177. [See footnote to Hilton's T-super article elsewhere.—ED.]

C. WEYGANDT advises that, where two races are kept in the same apiary, the hives of one race face east and the other west. The queens and drones of those facing east will often fly as early as 9 o'clock, the others not till 3.

SWEET CLOVER now turns up in a new role. Pfarrer Weilinger, in *Leipziger Bienenzeitung*, says gather it when in bloom and dry it, then put between the empty combs in your comb-closet, and the wax-moth won't touch the combs.

DOCTOR DUBINI, in *L'Apicoltore*, sides with my assistant against me, and says laying workers often have a plurality of eggs in worker-cells. Anyway, I'll stick to it that they prefer drone-cells, and I have good backing in one G. M. Doolittle, p. 177.

HONEY is quoted in the Sydney (Australia) *Herald* thus: Garden honey, 6 cents; bush honey, 4 to 5 cents. [They have long seasons and at least four times as many months of honey-gathering. That means low prices.—ED.]

IN TRANSFERRING the way G. A. Dyer proposes, p. 180, he must count on the queen sulking just about 5 days before she lays an egg, when she's shut on the foundation under the excluder. Besides, he'll have the honey gathered in that 21 days mostly in the old hive.

FEBRUARY 20 the thermometer went lower than any previous date this winter—15° below zero. Curiously enough, on that very day I got a paper from an Australian friend, reporting Jan. 13 as the hottest day ever known at Sydney, 108.5 in the shade, and in some places 120!

A STING about 5 inches long is sent me by E. M. Kellogg. I'd hate to have bees with such stings; but, fortunately, this belongs to a fish, *stingaree*, or sting-ray. It's barbed, and looks much like the magnified picture of a bee's sting, but makes a much more dangerous wound.

GEO. F. ROBBINS says, p. 172, that, with section-frames and brood-frames in upper story, the bees work old stuff into the new comb. I used to work lots that way, and had cappings darkened, but never had any trouble if I put down the brood-frames before they commenced capping the sections.

FOR FASTENING foundation in brood frames, try a saw-kerf $\frac{1}{32}$ wide and $\frac{1}{4}$ deep, fastening slightly with a few drops of wax from a burning beeswax candle, and you'll not likely be willing to fool with any other way of fastening afterward. Then you can have top-bars fully $\frac{7}{8}$ deep, and have whiter sections.

HEATHER HONEY has always been considered too thick to extract, but Gravenhorst's *Bienenzeitung* reports success by a high speed, and, instead of the ordinary wire cloth, having strips wide enough to support two rows of cells, leaving two rows between unsupported, then when these two rows of cells are extracted the position must be shifted so as to extract the other two.

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SLIPSHOD WAYS of handling comb honey are justly decried on pp. 171 and 183; but the same thing applies with double force to extracted honey. Take the honey itself that's sealed up in the worst specimens of section honey you can find, and it's away ahead of much of the miserable, thin, soured extracted so often to be found. [I agree with you.—ED.]

SKYLARK, p. 169, wonders that bee-keepers differ so much in their views while there's no difference of opinion among dairymen or poultry-breeders. Didn't know before that nobody kept cows or chickens around Skylark's way. [But, say; is it actually a fact that the dairy and poultry men don't have differences of opinion?—ED.]

DOOLITTLE tells in *American Bee-keeper*, that, in a colony that gave him 566 lbs. extracted honey, the queen had brood in 32 frames fully equal to 15 frames of brood coming out to the wood all round. He figures that, during linden, there were in the hive 160,700 bees. [That would mean about 30 lbs. of bees alone. No wonder they made a record. Too bad he hasn't that queen to breed from now.—ED.]

THE EDITOR, page 167, thinks I oughtn't to chuckle over that vote in favor of T supers, because the voters were nearly all "T-super men." What puzzles me is to know how many of them would have voted for T supers if they hadn't been "T-super men." [That's just it. Or, in other words, a Democrat will usually favor free trade, or tariff for revenue only; and a Republican, protection. But, say! if Mr. Taylor and I count votes right, the T super doesn't get the palm. See Editorials.—ED.]

A FISH DIET IS suggested as a change for the editor of GLEANINGS, by Hon. R. L. Taylor, in *Review*. Good idea. 'Spect, though, there had been a scarcity of fish in the Taylor mansion for some time before that idea was penned, to the effect that there couldn't be the same deliberate thought given to an editorial comment that the printer put right where it belonged, as there could be if the printer packed the comments all in a pile somewhere else, so you'd have to turn over the pages each time to fish 'em out. [See editorial, elsewhere.—ED.]

INTRODUCING. Here's the easiest way yet—if it always works. Herr Korndoerfer says, in *Imkerschule*, without hunting out the queen to be removed, blow chloroform into the hive—not enough to make many bees drop; then let the new queen run in, and that's all. He says the chloroform makes them forget the past. Hardly looks possible, but it's easy to try. [Queens very often will be accepted if merely let into the entrance, without chloroform or any thing else. When we didn't care much for the queens we let 'em run in and take their chances. Strangely enough, but a small percentage were lost. Bees seem to be more inclined to accept queens let into the entrance than when let loose into the top of the hive by removing the cover.—ED.]

COLORS OF HIVES. J. B. Kellen, editor *Luxemburg Bienenzeitung*, calls attention to the fact that, if the absorbing power of white be placed at 100, that of yellow will be 140, light green 155, turkish red 165, light blue 198, and black 208. [A couple of years ago, on a very hot sunny day, I put my bare hand on a yellow hive-cover, then on a white. The former was so hot I could not bear my hand on it; the latter was quite comfortable—just barely warm. This I tried on a lot of other white and yellow covers, with the same result. I am quite ready to believe these figures.—ED.]

INSANITY OF BEE-KEEPERS; WHAT MAKES LOW PRICES ON HONEY?

I wish to make a few remarks before I say any thing. This is not my usual style, for I generally "pitch into" my subject just as I used to pitch into the river, when I was a boy, whether it were head or heels foremost.

If a merchant is making money on his business, he does not blow about it; neither does he publish it in the papers, and scatter it broadcast over all the land. If an investor in any kind of stock sees a large amount of money in it he quietly buys up all the stock he can get, and says nothing about it. And so through all business circles, through all trades, professions, and occupations; the successful man is as dumb as an oyster. The time is out of joint, and we may well pause to consider our situation, and look around for a remedy. The normal condition of bee-keepers at the present time is insanity—a state of actual, acute, and rampant *insanity*.

The successful bee-keeper is not like the other business men noted above. The greater his success, the wilder and longer he will blow his horn. In fact, his horn seems to be a "harp of a thousand strings." If one is at rest, a hundred more are in sonorous motion. He seems to take delight in teaching his neighbors, acquaintances, and even strangers, "how to do it." I know from experience that this passion for teaching bee-keeping is not confined to publishers, supply-dealers, or queen-breeders, whose interest is superadded to their love of the calling and this characteristic mania for spreading it all over the land. Why this insane and suicidal course should be pursued I can

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not tell. There is something in the pursuit itself—something in our passionate love for it—that makes us proud and happy to tell and teach it to others. We are like the victims of animal magnetism, or hypnotism, as it is now called. We are under the will of a master whom we can not resist. Now, here is just where the insanity comes in. Every 1000 pounds of honey that is produced—in excess of the year before—brings down the price of honey. Every new bee-keeper who is started in business brings down the price of honey. Why, then, are we insane enough to start them? Our teachings, and our figures showing large gains, do the business, and a rival is raised up by our own hands to compete with us in the same market, with a product just as good as ours. But although I know it is so, I never *could feel* that a bee-keeper was a rival of mine. But he is to all intents and purposes; for if I had no rivals I could now get a dollar a pound for honey. It was once two dollars on this coast; and it is within the memory of living men when it was 50 cents in the markets of the Eastern States. What reduced it to its present insignificant price, but an influx of amateurs into the calling? An amateur soon becomes a proficient, when there is money ahead of him. If this mania were only confined to those whose interest it is to make more bee-keepers, there would not be such an enormous increase in their number. For one *they* make, bee-keepers themselves make a hundred. Even I—*Skylark*—when I ran short of undeveloped intellect, did some preaching to an audience of one on this subject, thus:

"Yes, friend Rollins" (he was rich, but still had an itching palm for the almighty dollar), "bee-keeping is better than a gold-mine; for after you get the mine, and put on it and in it thousands of dollars, you don't know when your load or vein may run out, and leave you with thousands of dollars' worth of expensive machinery on hand. You have a large rough lot of mountain land covered with black sage—the best pasturage in the world for bees. What would you think of a man who had thousands of acres of good pasture for horses and cattle, and not a single head of stock on it?"

"Well, Skylark, I declare you have opened my eyes. I never looked at it in that light before; but I see clearly now that I am losing money."

"Losing money! I should think there were thousands of dollars going to waste on that land every year."

"Well, Skylark, give me an idea of the probabilities of bee-keeping, so I shall not go into it blindly. I want to see my way clearly to success. You know I have money to go into the business on a large scale. When a man wants to make money there is no use in playing with copper cents."

"No, copper cents don't count up fast enough. How many colonies would you begin?"

"Well, Skylark, I will buy a thousand hives, as this promises to be a good year—say, a thousand."

"Well, if you never lose any bees, and double every year, the rate of increase and amount of honey—100 pounds to the hive—might be as follows:

	Colonies.	Increase to	Honey, lbs.
1st year	1,000	2,000	100,000
2d "	2,000	4,000	200,000
3d "	4,000	8,000	400,000
4th "	8,000	16,000	800,000
5th "	16,000	32,000	1,600,000
6th "	32,000	64,000	3,200,000

"The sixth year, according to this, you would have 3,200,000 lbs. of honey. At even ten cents per pound this would be an income of $320,000 a year, besides the $310,000 made in the preceding five years. Cæsar Augustus! What a world of bees and honey! Why, you could control the honey market of the world; establish houses for its sale in all the principal cities in Europe and America; buy up all the honey that is offered below your price, and then corner the market, and have it all your own way."

"Skylark, you are a brick. I never thought you had such extensive schemes in your brain. I see now it is only the want of capital that keeps you down, or you would be one of the richest men on the continent."

"Yes, friend Rollins, you say truly it is the want of capital that keeps me down. Just now I want a round 1000 dollars. Can you lend it to me? It would be a great accommodation, and place me under great obligations to you."

"Well, Skylark—ahem!—er—Skylark—er—I have invested all my money except what I shall need in this business. It would be impossible, but I am very sorry."

Now, I knew his check was as good as gold, from San Diego to Puget Sound; but just look at the meanness of the man. After I had put him in the way, and given him my full permission to make $320,000 annually, besides the $310,000 which he had made in the preceding five years—to refuse me the loan of a paltry thousand dollars! The deep ingratitude of some men is incomprehensible. Shall I give him a stunner, now, that will knock the stilts from under him, or let him go on and buy the 1000 hives and lose his money? Mr. Editor, my undeveloped intellect pointed one way, and my kind benevolent heart pulled another.

"Rollins," I called out to him, as he turned to go away, "look here a moment."

"All right, Skylark, what is it?"

"Well, be careful about your speculation in bees, for there are many losses you are not aware of at the present time."

"Why, Skylark, I thought it was all plain sailing. I get the bees, and they work for nothing and board themselves—isn't that the idea?"

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"That is all true in a good year—with a little skilled labor thrown in. But in a bad year—and bad years will come—you will have to feed two dollars' worth of sugar to each and every one of your colonies—amounting to $64,000. I think it would be better for you to build a beet-sugar factory. A good factory could be built for $50,000, and you could make your sugar cheaper than you can buy it. Oh, yes! then there is robbing. You must be wide awake when that begins, and it does begin with feeding. Once the robbers get a sniff of the fresh feed they will rob all the weak hives in the apiary. When they are finished, the strong hives will rise up in arms against one another. It doesn't much matter which whips—you are the loser, for millions of your bees are slain. Oh, yes! then there are the fires that occur every year in the dry season. They are just the thing to cause a big loss, when they sweep over miles of mountain and valley, as they do sometimes. But why tell you of losses by flood and fire; by skunks, bears, and other wild animals, when there are greater enemies within the hives? Yes, there is foul brood that sweeps away whole apiaries in a single year—as virulent and as infectious as the smallpox—traveling through all the surrounding country, carrying death and utter annihilation wherever it goes. Then there are losses by death of queens, by fertile workers, bee-paralysis, diarrhea, mumps, measles, whooping-cough, etc. But the worst of all is the toothache and earache. These coming in collision will cause the bees and sometimes the bee-keeper to dash themselves to death against the first post, tree, or rock they come to. Now let me tell you about the ravages of the moth-worm—"

"Skylark, you may stop right there. I have enough of bee-keeping."

"Well, but, Rollins, I am not done yet; for I haven't told you of the thousands of stings, and how to cure them."

"That's enough; I don't intend to get them, if I can help it. Good-by."

"Good-by, friend Rollins; but if you wish any other information on bee-keeping, always consider me ready to give it freely."

"I don't want it," he yelled back.

There is one (would-be) extensive bee-keeper killed, anyhow. Yes, killed as dead as a salted mackerel. If all bee-keepers would give the same vigorous encouragement to every applicant for advice, honey would advance a hundred per cent within two years, and more too. But friend Eugene Secor is not of my way of thinking. In *Review*, page 19, after giving us a very good article on the depressed state of the market, the adulteration of our product by middlemen, etc., he winds up by giving us two remedies as follows:

1. Produce only comb honey, and put it up in such "taking" packages that it will find its way on to the tables of those who can afford to pay for *luxuries*. That's what comb honey is, and always will be.

2. Encourage small bee-keepers (the adjective has reference to numbers of colonies).

Remedy 1 is a good one, and I believe it is the only one that will ever completely stop adulteration. If there is no extracted honey (or very little—there always will be a little from broken comb, etc.), the temptation is gone, and the extracted that gets into the market will go up as high as comb.

Remedy 2 stuns me. How encouraging small bee-keepers could tend to advance the price of honey, I can not tell. Has friend Secor got it too—that insane mania, common—yes, universal—among bee-keepers? Are we all mad? Is there not one sane man to call a halt in the manufacture of new bee-keepers? Mr. Editor, is there any proof now at hand—is there any tangible probability that you can point out—that we shall not all be in crowded asylums in less than five years? Here are my remedies:

1. I will place friend Secor's first remedy, to produce only comb honey.

2. Stop, by every means in your power, the production of *disracted* honey, for that is the name by which it should be known now.

3. Discourage, by every means in your power, every *would-be* bee-keeper, even if you have to floor him with a skillet.

4. Let us get from some foreign country, or breed a race of bees, with long and fiery stings—a race with coiled-up, hidden stings, that they can dart out 1¼ inches into the amateur. This will settle *him*.

These four rules put into effective operation would advance the price of comb honey to 40 cents a pound in less than two years, and in three it would be 50 cents.

Here is the bee we want. If it is twice the size of our Italians, it must have a long and fiery sting. Below is an extract from an article by J. E. Crane, *Review*, page 17:

In looking over an old volume of the *American Bee Journal* I came across the following under the title

A CHINESE BEE.

"The Apicultural Section of the Entomological Society at its annual meeting in Paris, August, 1874, made many interesting statements. Mr. Durand Saint Armand, a government officer in Cochin China, states that the country possesses a bee twice the size of ours, which, consequently, ought to have a proboscis long enough to extract the honey from red clover, which is known to be very abundant. This bee is found in great numbers all along the coast, in a wild state, in hollow trees, and the natives hunt them for their wax. The extensive forests of this country are leased for the product of wax which is to be sold to the Chinese."

Here, then, would appear to be our bee twice the size of *Apis mellifica*, and living, like them, in hollow trees. Can not our bee-keeping friends in France give us more information in regard to these bees? I believe a large portion, if not all, of Cochin China is now in the hands of France.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

FREE BEE-LITERATURE.

SHOULD BEE-KEEPERS PETITION CONGRESS TO PUBLISH AND DISTRIBUTE BEE-LITERATURE FREE AT THE EXPENSE OF THE PUBLIC?

By Thaddeus Smith.

This whole matter seems to me wrong. It proposes to tax the general public for the benefit of a particular and comparatively small class. It makes the government a competitor of the publishers of bee-literature. It is unjust to the tax-payers. It is unjust to the authors and publishers of bee-literature, and can be of no great benefit to bee-keepers in general. It is not claimed that the book published by the government contains any thing of especial importance to practical bee-keepers that is not found in our excellent standard books on the honey-bee, or may be learned through our many bee-journals and pamphlets on the subject. These statements can not be successfully controverted, and scarcely need to be enlarged upon to show that the free publication of this book for general distribution is entirely unnecessary. In the manner of distribution by Congressmen it will not reach those who need it most. The most of them would fall into the hands of that large and intelligent class of bee-keepers who *read*, and are already well posted on the subject. They would be the first to make application for it, and I have no doubt that the 1500 who have already applied for the book are all of that class, and are readers of GLEANINGS. It will, no doubt, be interesting reading to them all, but we can not say that it would give them much practical information that they had not before. Congressmen would send many of these books to their constituents who have no interest in bee-keeping, and never will have, and hence they would be thrown away.

This matter is very much on a par, though in a comparatively small way, with that gigantic humbug the free distribution of common garden and field seed by Congress, which fraud has been lately so faithfully and completely exposed by Secretary of Agriculture Morton. Political demagogues, though they be as talented as Senator Vest, may fume and fret and use their wit and eloquence in sarcastic denunciation of the Secretary, but every candid person can see that the Senator has failed to meet the facts and arguments of the Secretary, and failed to give any good reason why Congress should establish an immense seed-store at a cost of $150,000 to the public, when the country is now so well and cheaply supplied by the legitimate trade of reliable seedsmen. Neither is it necessary for Congress to publish bee-books for the public, when the same information can be obtained from the trade at such reasonable prices. I will quote a few lines here from an editorial that I saw in a daily paper yesterday:

> After being in session two and a half months, the Congress House has succeeded in passing a bill increasing from $130,000 to $150,000 the appropriation for the purchase and free distribution of tobacco-seed that produces mullein-plants and lettuce-seed that turns out to be Russian thistles."

This is the kind of sport that is being made of this business. Only a few days ago a member of Congress arose in his place in the House of Representatives and asked for information as to how much had been appropriated to aid the experiment to cross the honey-bee with the lightning-bug, so as to produce a new kind of bee that could gather honey at night by its own light. This, I suppose, was intended as ridicule of just such application for appropriations as I am considering. This is the result of communications like Mr. Hilton's frantic call upon all bee-keepers to petition Congress to issue 100,000 copies of Mr. Benton's book. Mr. Hilton says, "I have told them there are 300,000 bee-keepers," and he insists that everybody should write, so as to "make them *think* there is a million of us." But he gives no reason why it is so important to have this book distributed free that we should try to practice a deception on Congress to have it done.

I have not a word to say against the merits of Mr. Benton's book. I consider him one of the best-posted apiarists in the country, and I read with interest every thing that I see from his pen. I have not read his last book, but am anxious to do so as soon as I can find out where to buy it. But I can not join Mr. Hilton's clamorous brigade in petitioning Congress to do an injustice.

Frankfort, Ky., Feb. 21.

[Since the above was written we have received one other protest in a similar vein from a prominent bee-keeper and ex-president of the North American. The letter is not for publication, so I do not give it here. Take it all in all, friend Smith's article should be read carefully and acted upon accordingly. But it seems that not more than 15,000 will be printed in any event. See Editorials.—ED.]

A CAPITAL WAY OF SELLING HONEY AROUND HOME.

A GOOD OBJECT-LESSON.

By Geo. L. Vinal.

I believe the honey-producers owe it to themselves to educate the public about honey. To illustrate:

Early last fall I extracted some honey. Not having labels or jars I ran it into an alcohol-barrel. I got a small scale, a large bell, and started. When I came to the village I com-

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menced to ring my bell like the town crier of old. I soon had a call.

"Hi, mister! what you got to sell?"

"Honey."

"How do you sell it?"

"Fifteen cents a pound; eight pounds for a dollar."

"Will you let me see some of it?"

"Yes: bring a dish, please."

I let some run out. It was tasted, smelled of, etc. Then I was informed that *that* stuff was "molasses," and I could not convince them or any one else that it was honey.

Becoming disgusted I drove home. Thinking it over I made up my mind that the people wanted educating, and I proposed to give them an object-lesson. Getting some cards printed, saying that, if it was warm and pleasant Saturday I would give a free exhibition on the public square at 2:30. The next Saturday was a fine warm day, and at the appointed time I drove up with a large farm-wagon, having on it an observatory hive, a three-frame nucleus, one large hive without bees, an extractor, oil-stove, tin pails to heat water in, uncapping-knife and box, ten supers with uncapped combs, water-pail, and the same old barrel of molasses.

Mounting the deck seat of the wagon, and taking an old fish-horn, I gave them a fish-horn and bell solo (it was not *so low* but that the whole village could hear it). Collecting my audience I gave them a talk on bees and honey with a great deal of truth and information, and some nonsense mixed in, showing them the bees in the observatory hive, taking a frame from the nucleus and then from the supers, explaining the mode of uncapping and throwing it from the combs. I got a boy in the crowd to turn the crank of the extractor, letting it run into the pail; and when it was about half full I turned it into the barrel. Some of the combs I ran through the extractor five or six times, and it worked just as well.

The result was, I sold my barrel of honey and all I had in the combs, and could have sold more if I had had it, and convinced the public that extracted honey could be in barrels and not be molasses.

When I got home and counted up my cash I found I had $79.75 cts. for about 2½ hours' work. As nearly as I could judge I got about 20 cts. per lb. for the honey.

A week after, I went to a town of about 7000 inhabitants, about 6 miles from here. I had the same show, and two barrels of honey. The police saw that no one disturbed me. I sold all my honey, took $165 in cash, and never moved my wagon. Another community was educated. I go there now and supply the grocers, and have no trouble.

I had a heap of fun answering the gibes and guys of the crowd, and all the time kept selling honey, and educating the people to the fact they could get pure extracted honey. I will state that I carried a lot of quart and pint jars, all labeled, and drew the honey from the barrel into them. I carry to that town now only jars filled. I think that, next fall, I will give an exhibition of the same kind in all of the surrounding towns—that is, if I have any honey.

P. S.—A person with kidney trouble can eat all the honey he wants to, and it will not hurt him, as chemical test gives grape sugar; and it will not hurt him as will cane sugar. I know it from experience.

Charlton City, Mass., Feb. 24.

[You have given us some good ideas on selling honey, especially in the line of breaking down prejudice and creating a permanent demand. I have no doubt much can be done in the way of educating the public, and selling from the wagon. Yes, I am not surprised that the *modus operandi*, as well as the "horn-blowing," should draw a crowd. The general public know very little about the method of taking honey; and a good man—i. e., a good talker, can sell honey like hot cakes.

Patent-medicine men have long known and have availed themselves of the plan of selling from the wagon; and that they introduce and sell the goods we all know.—ED.]

PEDDLING HONEY.

HOW TO SPOIL A GOOD MARKET AND HOW TO BUILD IT UP AGAIN; FOLLY OF SELLING THIN UNRIPENED HONEY; A READABLE ARTICLE.

By Dan White.

That interesting article by Geo. L. Vinal, in Feb. 15th GLEANINGS, made me feel like saying something. I am something of a honey-peddler myself. George has started out in pretty good shape. There is a possibility of his getting side-tracked; and let us encourage him all we can to keep right on and not make the mistake many do after we have worked up a splendid honey-trade.

Some ten years ago I had a controversy in a farm journal about extracted honey. Don't you know I got such a thumping that I concluded the best thing I could do was to keep still? Yes, and I have kept still ever since. At that time I simply gave my individual experience. My opponent not only gave his experience, but referred to articles in GLEANINGS, and quoted A. I. Root and a host of other prominent bee-keepers. This chap told us all to extract long before the honey was ripe—the thinner the better. He explained how easily it came out of the combs; then he told us to put it in jugs, pans, and cans; cover with gauze cloth, and how nicely it would ripen up! He was loaded with experience; had gone through the details. I had never tried all this, so you can imagine the thrashing I got. Of course, I was somewhat vexed, and I would not try his plans anyhow. Oh, yes! some years before this, come to think, I did extract and peddle rather thinnish

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honey. I was well acquainted, you see, and, as I supposed, had worked up a splendid lot of customers. My experience at that time would compare favorably with what friend Vinal tells us. I answered all those questions; would almost hold up my hand that it was pure bees' honey, etc. Of course, I told the truth all the time; but whether you believe it or not, the next time I went over this territory I got into a hornet's nest. You know every village has one or two loud-talking women. I unfortunately, on this occasion, at the head of the street, mentioned honey to one of those very women. She talked so very loud that it aroused the whole neighborhood. Most of them were my customers too. It did not take me very long to make up my mind that new territory would be the most profitable. Before I left the street I heard one lady say, "He waters his honey;" and another one said, "He adulterates it." I tell you I almost wished I had never seen any honey. You see, my talk and trade were mostly with the ladies, and may be you don't think it was killing for some of them to talk as they did. Our friend Vinal could not have drawn the attention of some of these ladies by talking about the weather, mockingbirds, or any thing.

About this time I had invested considerable in bee-supplies, hives, etc. Honey was coming in by the ton, and I did want the money for it; but to sell it was a stunner. Let me tell you how a change came about. I was compelled to carry over winter quite a lot of honey. I felt somewhat discouraged, and neglected to do any extracting the next season until some time in August. Well, now, didn't I sweat, uncapping and whirling that extractor? Yes, sir! and that honey weighed 12 pounds to the gallon. My family tested it thoroughly, and decided it the finest honey they had ever eaten. We ate it every meal, and sometimes between meals, so you see this gave me confidence, or courage, to try peddling again. I put 150 pounds in my can. I sold about 100 pounds, and gave away the remainder. I made apologies to those I had sold to before; explained my mistake, and wanted to give them a few pounds of honey to settle with them. My plan worked well; but I noticed when I went around again after the gift, even my thin-honey friends took hold very cautiously. A pound or so was enough for a starter. It took me several years to again get the full confidence of some of them.

I tell you I am real earnest over this matter. Just think of the thousands of families who seldom taste honey; look over your own territory, and you will be surprised how many there are of this class. Don't you know this is all wrong, when some of this good white-clover and basswood honey, just such as I tell about, will gradually fetch them into line and hold them in line if you do your part? I have a large number of customers who annually order from 50 to 100 pounds of extracted for their own family use. Only last season, or 1894, I got a rather limited supply of sweet honey. Yes, it tasted sweet, all right, but somehow the little basswood and no white-clover honey was mixed with something that made it slightly off in color; also did not have just the right taste; but it was up to standard in weight. Now, I believe a majority of us would have called this honey good enough to offer to our best customers. We would not expect at least any serious harm; but let me tell you about it. I wanted some of those greenbacks and silver dollars. I had my doubts about it, but I rather reluctantly loaded up and went to town. I commenced right on the start to tell my customers that honey this season was not quite as good as usual. Those who wanted 50 pounds or more, I would persuade them to cut down their usual supply. In one instance a 50-pound customer wanted their own way; the whole family tasted while I talked. I finally got them down 10 pounds—they took 40. Now for the result. This season, 1895, my honey was never better. When I called at this place with the usual good-morning, I told them I was around with honey again. The little children playing in the front yard didn't even look up.

"Well," says the good woman, "somehow we don't like honey as we used to. We have kept putting it on the table every day, but we have quite a bit left that we got of you last season."

I referred to what I said the season before.

"Now," said I, "you bring out that old honey and I will trade you new honey even up for it." The trade was made. "Now I want you to take enough more to make your usual 50 pounds." She hardly thought it best, but finally let me have my way."

Just a few days ago the man of this house called out from the other side of the street:

"Say, White, we are about out of honey; can we get about 20 pounds more?"

"No, sir," said I, "we are all sold out."

"That's too bad We will see we get more than 50 pounds next season."

Now, then, this was not the only instance, because I had to do more or less talking all the way round. I noticed the children did not scamper ahead to tell their ma the honey-man was coming. Don't you see my customers were getting tired of honey, and they themselves did not know why it was? Now, the rest of you can do as you please; but hereafter, if my honey is not first-class in every respect my bees will have a chance to eat every pound of it.

Now, I wonder who is going to jump up and call me a crank, and tell us they can evaporate thin honey better than to let the bees put on the finishing touches. Don't you do it; for I tell you right now I won't try it. Don't do it, even if you are an expert, and do a fairly good job at it, for you may induce others to try it,

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and they will make such a bungle of it they will complain of an overstocked honey-market.

I believe it is second nature for the most of us to do as little labor as possible, and get good returns for the same; but in this case it seems to me we must please our customers whether we are just suited or not.

New London, O.

[For further suggestions on this subject see Editorials.—Ed.]

MISCHIEF IN THE APIARY.

THIEVES AND OUT-YARDS; WOULD IT BE AN ADVANTAGE TO HAVE AN OUT-YARD?

By Dr. C. C. Miller.

On page 903, last year, is a condition of affairs which rouses my sympathy, as a somewhat similar experience has more than once roused my indignation to such a pitch that I'm afraid it wasn't always "righteous indignation." I suspect, Ernest, that the experience reported on page 903 is perhaps the first you have had in that line. I've had a number of experiences, and practically can give you the experience of four different men, for I've had experience in four different neighborhoods, and experience that I suppose would have been just the same if the four apiaries had belonged to four different men.

The first feeling on finding that thieves or marauders have been at work is that the case is a very desperate one, and that desperate measures must be taken; for, having once commenced work, the villains will promptly repeat it, and perhaps keep repeating till nothing is left of the apiary. That's the thought; but as the years go by you find it doesn't turn out that way, and you learn to feel that only once in about so often will there be any trouble, and you may as well take it philosophically and hold your temper.

In the Belden apiary a hive was taken, super and all, and the river near by used as a bee-escape to get the bees out. The trouble was not repeated, and that's the only time in the three or four years that bees were kept there that they were ever disturbed.

During the ten or more years that bees have been kept in the Hastings apiary there has been trouble only once. A super was taken off—I think it was in day time, when the folks were away. The sections were taken out by means of breaking them, but they were nearly empty. As that was several years ago, with no repetition since, making the average loss per annum in that apiary less than ten cents, I don't think it would be wise to think about a house-apiary there—at least, unless for some other reason than security from thieves.

The Wilson apiary has not got off so clear. At three different times thieves have been there, making a total loss of two colonies and a super full of honey. That's the work of fifteen years.

The home apiary counts the largest number of raids, perhaps six or eight during its 35 years' history. As nearly as I can remember, the loss has been two full colonies, and at the other times the loss has been trifling. At two or three times a comb or two has been taken from the brood-nest, and at other times the venture seems to have been a failure, the bees apparently entering some earnest protests. One fall a hive was covered with a horse-blanket, and apparently started on a journey; but the journey was a short one, as I found the hive, still covered, about six feet away from its place. The blanket has never been called for.

Perhaps I might have been saved all this if the bees had been kept in a house-apiary; but is it absolutely certain that a house-apiary would never be broken into? Even if it were entirely thief-proof, it's a good deal cheaper to stand the losses I've had than the greater expense of buildings. Judging the future by the past, I may as well expect some trouble now and then, count it as one of the regular concomitants of the business, and not do any worrying over it, any more than a farmer need worry over a drouth or a flood. My assistant is not entirely of the same mind, grieving much over any loss, and often trying to make me believe that a hive has been taken, until I show her by the record-book that there was no hive on that spot to be taken. If I used little slates on hives instead of keeping a record-book she'd make life a burden for me, as she'd find a vacancy where a hive had been taken, at each visit to the apiary.

Except in one case I've never taken any steps to bring the guilty parties to justice. I think I know some of them, and possibly the time may come when I may have proof clear enough to follow up; but at present they're worrying over it more than I. The single case in which I did act was the case of two boys, perhaps 12 or 14 years old. About the middle of the day, when we were all at home, they started to carry off a hive between them. On being seen they made a very rapid flight. I went to their mother, and in presence of the older—the younger hid when he saw me coming—I tried to make her see that her sons were not starting on a promising career. I'm not entirely certain how fully she was convinced, but I think the boys never came back. The boy persisted in asserting his innocence, in spite of having been seen in the act, but promised he would never do so again.

SWEET CLOVER.

E. F. T. writes: "How deep do you plow sweet-clover seed in? Would it grow on sandy soil? In what month do you generally sow it?"

Without paying any attention to the order of answering, I may say that I don't generally

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sow it at all, but let it sow itself. My brother-in-law, who is a much better farmer than I, insists that it is best to have nothing else sown with it. The piece that I spoke of being plowed in was plowed in last spring about six inches deep in May, the seed having fallen on the ground the year before. I don't think it would make much difference what time the seed was put in from November till the first of June, providing it was put in fairly deep, or the ground well firmed if put in shallow. I've seen it grow well on sandy soil and on very stiff clay. I don't think it would grow on a bare rock, and it would probably not make a good growth in clear sand.

Marengo, Ill., Dec. 11.

[The house-apiary would make it much more difficult for them to get at the honey, and then I am not so sure it is so much more expensive than hives in an open yard. Usually at an outyard some sort of small shed or shop is needed to hold the tools and honey. A little more expense would make this a house-apiary where tools could be kept, honey stored off the hive, and the bees wintered without hauling them several miles home, and then storing them in the cellar. There is no mowing of grass and weeds, and no leveling up of hives. In the house-apiary, too, the fifty or seventy-five colonies are almost within arm's reach. In extracting, steps are saved, and robbers are shut out. Taking every thing into consideration I doubt if the house plan is much more expensive.—ED.]

GLORY AND RENOWN,

OR DISHONOR TO THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.

By Rambler.

There seems to be considerable controversy over the amalgamation scheme that has been sprung between the Bee-keepers' Union and the N. A. B. K. A. It is well to discuss all of the bearings in the case, in order to come to a wise decision.

I believe, with several others, that the Union has but little to gain in amalgamation. The membership of the N. A. is not large, and the dollars and prestige it would bring would not materially enlarge the usefulness of the Union. If, upon amalgamation, the N. A. could put into the Union treasury $10,000 there might be some good grounds for the change; but even then I think there are more advantages to be gained by acting along independent lines. Let me explain:

The Union was organized for a specific purpose: "The protection of bee-keepers in the lawful pursuit of their business." It has had remarkable success in that line of work, and still stands as a menace against those who would drive out a legitimate rural industry; and the Union is an organization of which every bee-keeper in the land may be proud. The N. A. was also organized for a specific purpose, of which the social feature was the most prominent; and, although I can judge only from written reports of the meetings, I have no hesitation in expressing the opinion that it has been a decided success. The topics that have been discussed have been ably handled; its meetings that have been held in various portions of the Eastern States and in Canada have imparted enthusiasm and bee-lore to many persons who would not otherwise have been interested.

The weakness of the organization, however, has been its non-representative character; and the same persons have appeared so often in the annual gatherings that the association has been facetiously called a mutual-admiration society. And now, after many years of pleasant existence and hallowed memories, its latest act is to lose all dignity, and it tries to crawl under the mantle of the successful Union.

It has been urged many times, and not without reason, that the Union should take up the subject of adulteration, and fight the adulterators of our product to the bitter end. It is all very well for us to outline a policy, but quite another thing to carry it out. The laws in relation to adulteration in one State are quite different from those in an adjoining State; and when set in motion the battle would have to be fought in every large center of trade; and the $700, more or less, in the treasury of the Union, would be just about enough to make a respectable fizzle.

THE REMEDY.

If the suit of the N. A. to amalgamate should be rejected, as it is hoped it will be, there then arises the one great opportunity for the N. A. to arise from its humble position and become a new light in the apicultural world, and of so much and far-reaching importance that the Union will become a dwarf beside it.

Here in California we have various organized exchanges. Among the most successful is the exchange for handling citrus fruits. The plan of organization is a central office, in Los Angeles. This central head is in direct communication with auxiliary exchanges in various counties; then, where necessary, there are township exchanges, and even school-district exchanges. As the season advances, the head knows just about how much fruit there will be to market; and, though there are some hitches in the new machinery, it works satisfactorily to a large number of producers. The bee-keepers are now organizing along the same lines; and, owing to their product being non-perishable, there is no reason to doubt that success will be attained.

Now allow me to suggest that the North American Bee-keepers' Association, at an annual (or, better, a special) meeting, soon change their name to the North American Bee-keepers' Exchange, become duly incorporated for busi-

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ness with an able board of directors, and with a permanent headquarters in some central State. If the N. A. would take this advice, the bee-keeping interests all over the country would take heart, for it would surely presage a systematic management of the honey markets, and put a fighting force of over 100,000 bee-keepers in the field, with a dollar or even more behind every man.

California and Arizona are already organized to forward the work here; and, being assured of a co-operative central head, every honey-producing State would immediately organize. Let the Union alone in its chosen field for the present, leaving amalgamation matters for the future to solve; but let the N. A. arise to this opportunity that invites it, and it will achieve glory and renown; but, casting it aside, it will merit—

The knell, the shroud, the mattock, and the grave;
The deep damp vault, the darkness and the worm.

E. KRETCHMER AND HIS SUPPLY BUSINESS.

Mr. Root:—In 1864 I commenced the manufacture of bee-hives, smokers, etc., in Des Moines Co., Iowa. In 1867 I removed to this county, locating at Coburg, where a steam-power factory was erected. Soon the necessity for better shipping facilities made itself manifest, and in 1890 the entire plant was removed to Red Oak, Iowa, our present location. I erected a factory, 24x100 ft., 2 stories high, and put in a 50-horse-power engine. In the fall of '90 another building, 32x80 ft., 3 stories high, and an extension 24x40 ft., 2 stories high, were added. In 1892 another wing, 24x80 ft., 2 stories high, was added, with additional steam power, a full set of new machinery, including section machinery. In 1893 a new office was built, and an exhaust-fan put in, to remove shavings from every working machine, and dust from the entire factory. In 1894, metal working machinery for the manufacture of honey-extractors, etc., was added. In 1895 a lumber-yard, under the management of one of my sons, became an adjunct to the business (his interest therein has quite recently been sold). A railroad switch on our premises facilitates carload shipment. E. KRETCHMER.

Red Oak, Iowa.

[In our issue for Feb. 15, wherein I gave brief statements, with portraits, from the principal manufacturers of bee-hive material, I omitted, as I have already stated, the name of a prominent supply manufacturer, E. Kretchmer, who has, perhaps, been longer in the business than any of us. The statement, together with the portrait, is given at this time.—ED.]

E. KRETCHMER.

BEE-KEEPING IN THE FUTURE.

By Evan E. Edwards.

And God said, Let there be light: and there was light.—GEN. 1:3.

So many rapid strides have been made in apiculture within the last few years that one is ready to believe that it will be greatly extended as a science, in the near future. Never, since the days of Huber, has the prospect appeared as bright as it does now—not for a greater yield of honey, but for a broader knowledge of God's wisdom as seen in the *Apis mellifica*. The Langstroth hive, the extractor, and comb foundation, have thrown more light upon the science of bee-keeping; but there is a new discovery which, in my opinion, will clear up all mysteries. I have reference to the new discovery in photography—the use of Prof. Roentgen's rays in taking pictures of objects through opaque substances. It has been demonstrated beyond all doubt, that the cathode ray will penetrate even iron itself; and the very bones of our bodies are accurately outlined. A bullet has been photographed in a man's foot; and a needle, by the same process, discovered in the tissue of the hand. How wonderful is light! and how much more important that word is in certain passages of the Bible! I tell you, brethren, if man can discover a light so penetrating, how searching must be the glori-

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ous rays of God! With more improvements, the innermost doings of the mind may be recorded by the camera. The probable outcome of this discovery is so stupendous that nothing seems impossible. The world of science will be rearranged, and a vast amount of new knowledge appended.

Now, in its application to the science of bee-keeping what will be the condition of our favorite pursuit in the years to come? Well, in the first place all the mysteries of the bees in their own hives will be seen and read as plainly as a primer; then, by the help of the new knowledge gained, our implements will be remodeled and improved, and a host of new inventions added. When the time comes, the full biography of the bee may be written, from the formation of the egg to the music of its vibrations among the clover-blossoms. No more need of tearing a hive to pieces to examine into its condition. Just take your Kodak and picture the whereabouts of the queen, or situation of the brood, queen-cells, honey in the supers, etc. Nay, with a little more improvement you might have a representation of each colony at your "secretary," by means of an electric current conveying the pictures, and all you would have to do would be to eat your beefsteak, and give directions as to each colony.

Well, all this sounds like an Arabian Nights' story; but who knows, Mr. Root, what things are possible at the present rate the world is moving?

Alexandria, Ind.

[The world does move; but I have little faith that we shall ever be able to see the queen other than the way we are doing now. If I read the papers correctly, only the bones of our hands and feet and those near the surface can be photographed with the cathode rays.—ED.]

SOMETHING OF MY MANAGEMENT IN THE APIARY.

By F. Greiner.

The more experience I gather in the management of bees, the more I become aware how difficult it is to lay down rules to be followed year after year, with any guarantee of meeting with highest success. In my location a honey season is an unknown and uncertain quantity, and much depends still upon luck or circumstances which we have not under our control, and which we can not foretell. So our preconstructed and most petted plans often come to naught. As not all shoes can be made over one last, expecting to fit all and every foot, so we are obliged to modify our plans to suit the seasons as they are. Some years our honey season opens from the first to the middle of June (this is rare); some years about a month later (more often), and other years nearly two months later, closing about Aug. 25 to 28. Perhaps once it twenty years we may expect honey-dew after that, lasting, under favorable circumstances, some two weeks. With these prospects I may commence operations the fore part of May if the month comes in warm enough. We may have at this time some colonies exceptionally strong; often some begin to lay out by May 1. Now, if the honey season does not open till in July these colonies are wasting their energies unless some use can be made of them during May and June. If more increase is desired, dividing these colonies would serve a good purpose; but feeding may possibly have to be resorted to. I have always been an opponent of this kind of feeding. I don't do it; for if the honey season does fail, more sugar will be needed in the fall; and should it so happen that bees do not winter well, we may lose our investment. Furthermore, should a fair honey-flow set in soon, our divided colonies would not be well fitted to store surplus; they could not well be depended on until basswood opens. A better use of these strong colonies can be made by drawing on them for equalization. I greatly prefer to help up the weaker colonies—not the weakest, however. At this time the weather is as yet uncertain and changeable, and we must guard against chilled brood. In equalizing I take but one brood-comb at a time, replacing with an empty comb, or even one solid with honey. The latter I scrape so as to break cappings; I also select such brood-combs as contain capped brood as much as possible.

If, by the time apple-bloom commences, all colonies should be in tolerably good shape, some of these strongest colonies may be dequeened and allowed to raise a young queen. The old queens may be saved and set aside with a brood-comb and adhering bees, and then allowed to build up during the season. If two such nuclei are united later on, a harvest may be expected of them from buckwheat. But I do dislike to give up any of these queens. Although old they are probably good ones, and I try to save them all. Later on it will be seen that it frequently happens during the summer that we have brood-combs to dispose of. Such I use to build up the nuclei, and I generally succeed in getting them in shape to take advantage of the late flow, so they will give a surplus.

When the prospect of basswood bloom was good, and no increase, or little of it, desired, I have practiced this kind of dequeening with good success about June 20–25, or about 12 to 15 days before the basswood flow is expected; but nearly matured cells were then given. The object is to have our young queens begin to lay as basswood begins, or, rather, a few days before. Such colonies are practically in the same condition as colonies having cast a swarm, except that they are much stronger; they are in good working order.

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Colonies having swarmed but once, I find, will work nicely after they get their queens, providing honey is coming in sufficiently. The Heddon method reduces the parent colony to a mere fraction, which is of little further good that season; for this reason I abandoned the Heddon method of preventing after-swarms long ago. To reinforce my young swarms I prefer to hive them on the stands of some other good colonies not having cast swarms, treating these colonies sometimes, if thought best, as the parent colony in the Heddon plan. More colonies can thus be gotten in working order for the basswood-honey flow. I do not suffer any colony to cast more than one swarm. All second swarms are returned after cutting out the queen-cells. Should a second swarm unite with a prime swarm while out in the air, I make no attempt to separate them; but the next prime swarm is hived in the hive having cast the second swarm. Quite a number of colonies are treated on this plan in my yard during the latter part of the swarming season every year; only, in practicing it, I do not wait for the after-swarm to issue, but hive the prime swarms into such hives as have cast their prime swarms five or six days previously.

Swarms issuing during the main honey-flow (from basswood) I also hive in empty hives on the same stands whence they came; shake all bees from parent colonies off and in with them; give section-cases to swarms, and use brood-combs to build up nuclei made during the earlier part of the season. All young swarms are given a reduced brood-chamber, hiving them on empty frames provided with foundation starters (strips ¾ inch wide), never using full sheets. The later the swarms issue, the more the brood-chambers are reduced, commencing with seven L. frames or their equivalent, later on using six, then only five or half-stories.

At any time, should flowers yield honey to any amount, section-cases are applied to the strong colonies. It is an impossibility to have all colonies in working order all the time; but since the flow from linden is the most reliable (with buckwheat to follow), I aim to have all colonies strong when it commences, but also have some colonies ready any time. In favorable years we may get some honey from sugar maple, fruit bloom, and clover; but only clover amounts to any thing, if any thing does at all; and I believe it is better to allow the bees to store in the brood-chamber from the first-named sources to bridge over the different periods of honey dearth. To those colonies that I expect to work in the sections during the earliest part of the season I give only a few sections, dummies being used in the cases, with chaff cushion on top. If we can supply sections with nice white comb in them, we are all the surer of the bees occupying, filling, and finishing them. Comb foundation I do not use in full sheets in sections at any time. I feel a good deal like a prominent German bee-keeper who recently said in the *Bienenzeitung*, "If we should use comb foundation in our comb honey we should soon drive many of the purchasers of our honey away from the markets." I myself am not only a producer of comb honey, but also very largely a consumer, and I consider foundation an undesirable adjunct to my comb honey when it comes to the eating part.

Since keeping bees I have experienced only one season with a continuous honey-flow from beginning of basswood to the end of buckwheat; but ordinarily we have a honey dearth between the two, lasting from 8 to 16 days, and I find it pays me well to remove all sections after basswood is over, sort out all partly finished ones, and have them finished up on a few of the best working colonies during this time. I feed extracted honey in somewhat diluted form. When open cases are used, such course can not be so well pursued; but I believe nearly all comb-honey producers use separators now.

Although my aim is section honey, still I also raise some extracted honey, for my home use and home trade principally. I find, however, nice white extracted honey, put up in one-pound glass jars (screw-top preferred), sells as well as comb honey in some large cities; but it must reach the consumer before it granulates.

In fitting my comb honey for market I always scrape sections perfectly clean, stamp each with my name and address, put them up in 24-pound crates, glassed and otherwise neatly made, and sell early. In shipping I combine with the grape-growers of my town, and so I secure very low freight rates to the principal cities, quick transit, and safety; also avoidance of breakage, etc. It would be to the advantage of honey-producers in general if they would follow the example. Prof. Cook is right on this subject.

Naples, N. Y., Jan. 11.

CONTROL OF BEES.

THE DIVISIBLE BROOD-CHAMBER BEST ADAPTED TO IT.

By J. E. Hand.

Mr. Root:—I notice on page 19 that Dr. Miller seems to think it a thing incredible that any one should have perfect control of his bees. He says when his bees take it into their heads to make preparation for swarming they don't always mind what he says; and he doubts whether mine are much more obedient. It is evident from the above he is laboring under the impression that the prevention of swarming is necessary to the perfect control of bees. With this view of the case, perhaps he may be excused for being rather skeptical. I did not intend to convey the idea that the divisible-brood-chamber hive gives me perfect control of

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the natural instincts of my bees, but that, by working in harmony with these instincts, and allowing my bees to swarm. I get far better results in work; and the divisible brood-chamber, when contracted to the capacity of four L. frames, as I use it for hiving swarms, forces the bees into the sections, and the work goes right on with the added energy of the new swarm. This is what I consider perfect control of swarming; and all who are familiar with the workings of this hive know how well it is adapted to this purpose. And so on all along down the line of the various manipulations of this hive: always keeping in view the natural instincts of the bee as we find them, we have perfect control of our bees at all times.

By interchanging the sections of the brood-chamber of this hive as often as any honey appears along the top-bar, we accomplish the same object that Mr. Boardman and others do by feeding sugar syrup—that of getting all the white honey in the sections, with the advantage that our brood-chamber is crowded with brood clear to the top-bar instead of having to buy sugar. This gives perfect control of the honey-storing of our bees; and by contraction to the capacity of 4 L. frames, or expansion to any desired limit, we have perfect control of the brood-rearing of our bees.

I have stated these facts as I have found them by actual experience in the use of these hives, as a honey-producer, and am not in any way interested in the manufacture or sale of any kind of hives. It is true, there is no hive that will please every one, and there are many good hives now in use; and perhaps in the hands of the average bee-keeper this hive would give no better results, if as good, as the ones they are using. It should be understood that this hive, without following the system of manipulation for which it is particularly constructed, is no better, if as good, than most other hives in use. But to the practical honey-producer who wants to take advantage of a short honey-flow to get the white honey in the sections, it is of real value, and I believe most of those who have condemned these hives have been compelled to do so by the improper construction of the hives as they used them.

Most people make a mistake in making their hives too large. They should not contain more than 8 frames, and the frames should not be larger than 4¼x17 inches inside, and by all means they should be used in a side-opening hive. This removes the greatest objection I have ever found in the use of these hives, and takes away all that uncomfortable feeling B. Taylor experienced whenever he had to manipulate those frames. Again, Dr. Miller says the man who has perhaps used it longer than any other denounces it at last. Why didn't he go a little further, and tell us that it took the gentleman referred to 30 years to find out the weak points of this hive? and as I have used it only five or six years, I think I may be excused for not having found them out yet.

In conclusion, my advice to beginners is, go slow; prove all things, and hold fast that which is good.

Wakeman, O., Feb. 17.

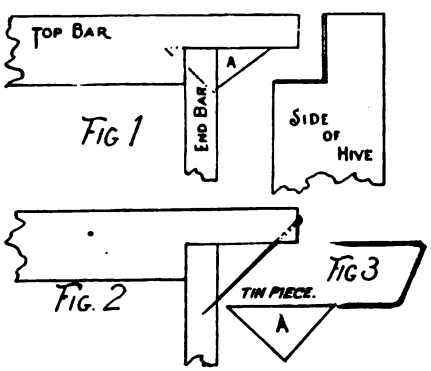
FURNITURE-NAIL SPACERS.

A FEW SUGGESTIONS TO DR. MILLER.

By N. T. Phelps.

What Dr. Miller says on p. 57 makes me feel like giving him a suggestion or two, whether he will profit by them or not. He does not seem to like the "best things" always (my judgment). In the production of comb honey I don't see how he can want a better frame-spacer than the furniture-nails, using them so that the tops of two nail-heads will come together, using just twice as many as he proposes to use. I feel sure that a thorough trial of them will satisfy any one. They will not catch on to "things" or each other. They make a little knob to hold by that makes it easier to handle the frames, or carry about the apiary, either with one hand or both, if they are placed out on the ends of the top-bar, where they ought to be.

After trying many kinds of spacers, and using some for fifteen years continuously—long before the GLEANINGS people would tolerate the idea of a spacer—I suggest to Dr. Miller that he confine himself to furniture-nails. If those do not suit him I suggest that he use staples, such as are used to fasten the rods to the edges of the slats to window-blinds, or carpet-staples, putting them in so that the tops will cross each other at right angles when the frames are in proper place in the hives. Use a punch or set to drive them with that has a rather broad end with a hole or slot to place over the staples, to drive them exactly the right depth.



As Dr. Miller wishes to cut off the end of his top-bar ¼ of an inch on each end, and put in a spacing-nail, I suggest that he don't do it. They will "catch on to things." In its stead I

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suggest that he use half of a piece of tin or sheet iron, ¾ inch square, cut in two cornerwise, and driven into the middle of the top end of the end-bar of his frame close up under the projecting end of his top-bar as shown in Fig. 1.

Use a set made of a piece of iron ¾x⅜ inch, and 3 or 4 inches long, with a saw-cut made in the end to set in the pieces just right, holding the end of the top-bar and the set tightly between the thumb and fingers while it is being driven in.

If that doesn't suit him, and he is expert at driving nails, let him take a wire finishing-nail, 1¼ inches long, and drive it in as in Fig. 2. Either of these will guide the frame into the right place, and not "catch on to things." A wire staple, something like Fig. 3, might be made and driven in close up under the top-bar. A tool with which each might make his own staples can be made very cheaply. If the ends of the frames are cut off ¼ inch, with the present construction of hives and frames something will be needed to guide the frame just as it is set down into position. Those little wire staples used on blind-slats, driven into the frame horizontally, close up under the top-bar, with one leg above the other, make quite good guides. One must be a little careful just as the frame is set down. These, as well as the spacers, must be put in just exactly right to be satisfactory. Many good things for bee-keepers have been condemned because they were not made exact enough.

Kingsville, O.

[Friend Phelps was, I believe, the first one to suggest furniture-nails as spacers; but when two of them are used in such a way that their heads or faces abut together they are not "exact enough." The heads are rounding, and sliding by each other a small trifle destroys exact spacing. If I were to use furniture-nails at all I should want the head deep enough to reach from one frame to the other as shown on page 776, last year.

The idea of having a bee-space between the end of the frame and the upright of the rabbet is good. Your devices for preventing end shuck of the frames when such bee-space is allowed may answer, but I am of the opinion something better yet should be devised. With self-spacing frames there is more propolis sticking at the *ends* of the top-bars than elsewhere; and it amounts to more, because, in loosening one frame, the propolis joints of all the frames next to it must be broken. The propolis sticking *between* the frames amounts to nothing.—ED.]

FURNITURE-NAIL SPACERS A SUCCESS.

I use the furniture-nail frame-spacers. I have about 2000 frames with four No. 9 furniture-nails on each top-bar; bars strong 1 inch wide. I moved 60 colonies three miles without other fastenings. I prefer them to any thing else I know of; but mine get stuck together, and pull out of the bars; if of pine, the nail should be made longer or cement-coated.

Royersford, Pa., Jan. 13. W. E. PETERMAN.

CHEAP HONEY IN CALIFORNIA.

GLUCOSE THE CAUSE.

By E. H. Schæffle.

Prof. Cook's argument, that "in union there is strength," and citing the Fruit-growers' Union as proof, reads well, but is misleading. Now, in the same number in which the professor complains that extracted honey in California is bringing but 3 cts. a pound, the market reports of New York show it to be 6½ to 7½; Boston, 5 to 6; Cincinnati, 4 to 7; Chicago, 4½ to 7. If you will add freight and cartage to the California price it will be seen that there is no big margin in the handling. What is wanted is an increased consumption. The silver-miners tried in vain to get silver on the same plane with gold, but the people wanted gold and not silver; and as the supply exceeded the demand at profitable production, the majority of the silver-mines were compelled to shut down. Just so with honey. If we produce an amount greater than the demand, we must accept the poor prices paid for an article that is in over-supply, and, in consequence, a drug and drag. There are to-day more consumers of honey than ever before, with the number constantly increasing far more rapidly than the production of honey. Then why is honey a drug? Simply because its place has been filled by glucose. This fraud has not only crowded honey out, but it has turned the consumer against honey.

I worked up a fine trade with retail grocers for honey. The salesman of a packing-house fitted them up with his sham of a piece of comb honey in a jar of glucose; and the merchants, a month later, remarked to me, "Somehow we're not selling any honey now. The people seem to have grown tired of it."

The apiarist sells pure honey. That sold in original cases by the commission houses is, as a rule, pure; but the stuff sold by the grocers, by the packing-houses, and by the grocers to the consumers, is a miserable cheat that cures the consumer of his love for honey, and robs the producer, both of a market and of a paying price for his product. The only remedy is a pure-food law that carries with it a provision and appropriation for its enforcement. All the laws passed or that may be passed will benefit no one if they are not enforced. It is against the law to sell adulterated honey in this State, and there is a good fine for the offense; but as it is nobody's business to see that the law is carried out, the packer continues to disgust the people with his glucose mixture, and honey grows less and less in demand—first, because the people are disgusted with its substitute; second, because the bulk of the honey (?) sold at retail is glucose flavored with a small quantity of honey.

Murphys, Cal., Jan. 6, 1896.

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PRACTICAL HIVES.

THE HILTON CHAFF HIVE.

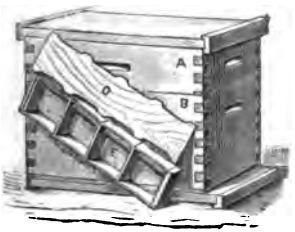
By Hon. George E. Hilton.

Perhaps there is no one item in bee-keeping of more practical importance than the hive and brood-frame we use. In regard to the frame, the Langstroth (or Simplicity) size has become almost as standard as the widths of our wagon-tracks; in fact, I am safe in saying there are more hives of this size in use to-day than all other sizes combined. The frame proper is 17⅝ inches long and 9⅛ deep, the top-bar being 19⅛ inches long.

There are several styles made, but I very much prefer what is known as the "Hoffman." This is a heavy top-bar in depth as well as width. The end-bars are made 1⅜ inches wide for about three inches down, and one side is worked off to a knife-edge, which comes against the square edge of the next frame, making them a self-spacing but not a closed-end frame, and allowing the proper bee-space between the top-bars. This is a great help to the beginner in bee culture, and does away with the honey-board.

The hive to adapt itself to this frame, and to be best adapted to the production of comb honey, should have a brood-nest 11⅛ inches wide, 10 inches deep, and 18⅜ inches long, which will accommodate 8 frames without a follower, and I believe a follower in a brood-nest is worse than worthless. This arrangement leaves ⅜ inch between the top of the frames and the top of the brood-nest, so that, when the surplus-cases are put on, the proper bee-space is preserved.

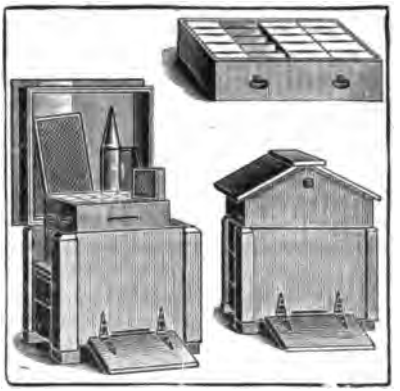
There are those who still prefer a single-walled hive; but I find in Michigan, and other States as far north as we are, some kind of chaff or double-walled hive is preferred by the large majority of bee-keepers. For those who still prefer the single-walled hive, I know of no cheaper, better made, or more practical hive than the one illustrated below.



THE DOVETAILED HIVE.

But years of practical experience prove that bees winter better, and consequently dwindle less in the spring, are in better condition for the honey-flow when it comes, and do better work in the surplus-apartment, with a hive that protects the bees against the sudden changes that are sure to come in this latitude. To do this we must have some kind of double-walled hive that will protect the bees against the extreme changes of heat, as well as the extreme changes of cold, and is always in readiness for these emergencies, night or day, summer or winter.

Perhaps no one in this State has experimented more along these lines than the writer, and I believe there are more of the hives illustrated below used between here and the Straits than all others combined. In the past 15 years of their use I have received nothing but favorable comment along the lines mentioned above.



HILTON'S IMPROVED DOUBLE-WALLED HIVE AND T SUPER.

This hive is made of ⅝ lumber, ship-lapped together in a manner to make a perfect joint; is 20 inches wide and 24 inches long, and about 20 inches high to the eave of roof, and weighs (empty) about 50 pounds. The brood-nest is of the dimensions given, but can be made to hold ten frames instead of eight.

The brood-nest is raised sufficiently to admit of packing between the bottom of brood-nest and bottom of hive proper, also room for packing at sides and ends. It will be readily understood that the lower portion of the hive, being well protected against the cold, the warmth from the bees arising will care for the upper portion. To avoid condensation in this case I cover the brood-nest between the times of removing the surplus-cases in the fall and putting them in again the following season with a porous substance or chaff cushion. This I arrange by making a wooden rim about four inches deep, covered top and bottom with burlap, and filled with chaff or cut straw (which I prefer for all the packing). This rim should be made a little smaller than the inside of the hive.

When I remove the surplus-cases in the fall I make sure they have plenty of stores for winter. Lay on a piece of woolen blanket if you have

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it, or some porous substance, to prevent their gnawing the cushion and letting the chaff down among them. Then put on your cushion and let them alone until spring.

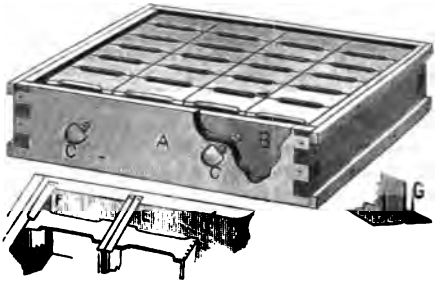
The cut will illustrate where the cushion goes, also the surplus-apartment. As will be seen, there is room in the upper story for two supers for comb honey, or a large super for extracted, and the cover shuts over all. In extremely warm weather the cover can be raised a few inches in front, giving a circulation of air all around the surplus-apartment, and shading it at the same time. The cover is hinged at the back end; and, when raised as shown in the cut, it makes two shelves for the use of the operator, which is highly appreciated; besides, there is no lifting on or off of covers as is the case in all other hives. The alighting-board, too, is hinged, and can be so arranged as to touch the ground. This is a great advantage to the bees during a heavy honey-flow.

THE HILTON T SUPER; WHY I PREFER IT TO THE LOOSE TINS OR SECTION-HOLDERS.

In the first place, I am prejudiced against any thing that is more likely to be out of its place than in when wanted; and I can see no advantages in the loose tins that the stationary tins do not possess. With me a super is more easily filled or emptied with stationary tins than loose ones, especially when the thumb-screw device is attached; and the improvement I claim is in the stationary tins and the thumb-screws. I believe that, for the best results in comb honey, the sections should be as near the brood-nest as possible; and with the Hoffman frames I do not find it necessary to use a honey-board of any kind, which brings the sections only ⅜ of an inch from the top-bars. I believe that, the sooner honey is taken from the crate after it is capped, the better. I go over my yards often, and remove all finished sections, which can be accomplished by loosening the thumb-screws. Any section in the super can be drawn without disturbing the others; and should the entire super be finished, it can be emptied entire by turning it bottom up upon the table or bench. Loosen the thumb-screws, and, as a rule, they will drop down ⅜ of an inch, and the super can be lifted off, and leave the sections in a lump. You need no follower, as a slight jar will always bring them down.

THE HILTON T SUPER FOR CHAFF HIVE.

The reason I prefer the same arrangement for the Dovetailed hive, or in any super that uses section-holders, is, first, the holder removes the sections farther from the brood-nest, and places another network of wood between them and the sections; and because of this the bees do not enter them as readily; and with proper spacing I believe sections are cleaned quicker without a bottom-bar than with one; for I never saw a bottom-bar that the bees would not blow propolis in between the sections and bottom-bar This sticks them so fast that you can not take out a section without first taking out the section-holder and the four sections it contains, and then you will frequently break the bottom of the section in getting it out. In



HILTON'S T SUPER FOR THE DOVETAILED HIVE.

emptying the entire super I know of no way it can be done satisfactorily; and in tiering up it makes too much wood between the supers. They are adapted to any width of section, with or without separators; and the separators can be made to cover the entire edge of the section, and the screws keep them so tight that no propolis is put on the edges.

The cuts will show that it is no trouble to get out the first row of sections, as is experienced with the Moore crate and others that have no tensions to apply to the sections.

There are other things I could say in its favor, but will only say this: In the ten years I have been sending it out, I have never known is to be laid aside for any thing else. I send out at least a thousand of them to ten of any other kind.

Fremont, Mich.

[Dr. Miller and the members of his family have always been strong advocates of removable T tins; and when we made T supers in the first place, they were according to Dr. Miller's ideas; that is, the T tins were removable. But ever since we have made them we have had calls for supers with stationary tins, and the demand has been steadily increasing. A few among those who prefer such I would mention Mr. Harry Lathrop, of Browntown, Wis.; Mr. A. B. Anthony, whose T super we illustrated in our last issue, and George E. Hilton. I requested the latter to give his reasons in full for preferring his style of super, and the article above is the result.

When I called upon Dr. Miller a couple of months ago I told him that the tide was changing in favor of the stationary tins, and that, so far as I knew, those who were using the loose tins used that style because they followed in his tracks in purchasing Root T supers. I tried to argue the doctor down in his position for loose tins; but he would not, under any consideration, use them, he said. Why! they could fill the supers so much quicker.

"You talk with Emma," said he (as if he thought she'd vanquish me anyhow). "She fills all the supers."

I did so; and she proposed that we three go out into the shop. There I noticed that she put in one T tin, and fills one row; another tin and another row, and so on until the super is filled.

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"Why," said she, "if I had stationary tins I should have to fuss and fuss to get the sections in, because I have to get them in their exact position before they will drop on to the tins."

"Yes," said I, "but others say they can fill supers with stationary tins faster."

"Well," said she, with an invincible look in her eyes as she picked up a bundle of loose tins, "I should like to know how those people are going to clean the propolis off from them when they are fastened firmly to the super. All *we* have to do is to throw a bundle of them into a kettle of hot water, and they are clean."

I meekly said nothing.

"Then," interposed the doctor, "the loose tins give us a great advantage in pushing out the sections *en masse*."

All this I explained to Mr. Harry Lathrop, when I saw him later.

"Why," said he, "I have no trouble in cleaning the T tins. With a putty-knife I scrape them off easily."

Later on, in talking with some one in Chicago, I do not remember now who it was, that person remarked that, "with loose T tins, and the super pretty nearly full, the whole business is liable to tumble out in handling."

If I remember correctly, Mr. Lathrop urged the same point.

There, now, I believe I have given you both sides so far as I know them. I presume the doctor will continue to use loose T tins because he has become accustomed to them; and I presume likely, also, the other fellows will continue to use *their* ways.—ED.]

POLLEN IN SECTIONS.

Question.—Why do bees store pollen in sections? I had one colony the past season store large quantities of pollen in the honey-boxes, while the other colonies stored very little, if any.

Answer.—The storing of pollen in the surplus-apartment is largely brought about by the queen filling the brood-chambers so full of brood that there is not room enough for all of the needed pollen below. This is a thing that does not very often happen when a large hive is used; but with our small brood-chambers of the present day it is not at all unusual for this state of affairs to exist where no honey-board or queen-excluder is used. The queen-excluding honey-board, made of perforated zinc and wood, is a great help along this line, and I think it would well pay for using, on this account alone, where the brood-chamber used was not larger than one division of the Heddon hive. Then there is the break-joint honey-board, which is almost entire proof against the storing of pollen in the sections. Perhaps some of the younger readers of GLEANINGS do not know what a break-joint honey-board is. It is a honey-board so made that the openings from the brood-chamber to the surplus-apartment come directly over the center of the top-bar to each frame, instead of being over the passage-ways between the combs, as our honey-boards of the past were made. This causes the bees to come up over the top-bars to the frames to get into the sections, or gives a crooked passageway, instead of the continuous passageway of our fathers. Such a circuitous route causes the bees to think that the room above is not a part of the brood-chamber, so they do not store pollen in it, for pollen is, as a rule, stored close to the brood. For the same reason, large hives give the same results, as in this case there is usually quite an amount of sealed honey between the brood in the hive below and the surplus-arrangement above. However, it is claimed that bees will not work as well in boxes where they can store large quantities of honey below before they commence in the sections, so it is thought that a small brood-chamber is much more preferable, even if we do have to go to the trouble of making a special honey-board to keep the queen and pollen out of the sections.

WHY BEES STORE POLLEN.

Question.—Why is it that some colonies store more pollen than others? I found one or two colonies in mid-summer that had their combs half full of pollen, while the others did not seem to have such an abundance.

Answer.—Pollen accumulates in the combs only as brood-rearing is not carried on rapidly enough to consume it as fast as it is brought in. For this reason a queenless colony will often have its combs half filled with pollen, while one by its side having a prolific queen will have hardly any in its combs. During the latter part of the season, more or less pollen is generally stored; for at this time the rearing of brood is drawing to a close, and nature has so ordained that the bees should have some pollen in early spring before they can get any from the fields; but the prolificness of the queen has more to do with it than any thing else.

POLLEN A BEE-FOOD.

Question.—Is not pollen a bee-food? Why I ask this is, I have a neighbor keeping bees who says that the bees never eat pollen; but I think he is mistaken.

Answer.—Pollen, or bee-bread, is not a food for the mature bee to any great extent, but it is used largely in compounding the chyme, which is fed to the larva, or young bee, while in the larval state; hence when the bees are breeding largely, as in June, large quantities of pollen are consumed. Pollen, honey, and water are taken into the stomach of the nurse-bee, and, by a process of partial digestion or secretion, formed into milk or chyme, which is the only food of the immature bee; and if from any reason the supply of honey entirely gives out at such times of prolific brood-rearing, the larvæ are sucked dry by the mature bees so they (the bees) need not perish; and if the famine still continues, the nurse-bees feed this chyme to the mature

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bees instead of the larvæ, till all the pollen in the hive is used up. At least, this is as I believe it to be after very careful watching along these lines. At no other time have I ever known of mature bees eating pollen. I have starved several colonies in the fall when there was little or no brood, by various experiments, in trying to make old bees subsist on pollen, and never could see that they touched a particle of it.

POLLEN AND PROPOLIS NOT THE SAME.

Question.—A man of some experience with bees told me that pollen and propolis were the same. Is this so?

Answer.—No! Their offices are very different; and the man who has any idea that the two are at all alike has had no experience along this line of bee-keeping, else he would know better. Propolis is a resinous substance gathered by the bees very largely from the buds of the balm of Gilead and other trees which secrete any substance of a salvy nature which can be worked in warm weather, but which is hard and brittle on the approach of winter. It is used to stop all cracks in the hive not large enough to admit a bee, and to smooth over all uneven surfaces about that part of the hive they come in contact with. It is as different from the farinaceous substance of pollen as glue is from flour, and could in no way be made to take the place of pollen in preparing the food for the larval bees; neither could pollen be made to take the place of propolis in stopping cracks or glazing the walls of the hive, for it would crumble and fall off as fast as the bees could put it on.

HAS POLLEN OR PROPOLIS ANY DOMESTIC USE?

Question.—Can either pollen or propolis be put to any domestic use?

Answer.—I think not, although there has been some attempt made at using propolis for one of the ingredients in making salve. From last accounts the attempts resulted in partial failure, so that this has no market value; and no idea has ever been entertained, that I know of, by any one, of making use of pollen in any form or under any circumstances. In queenless colonies it often collects in the combs so as to become almost a nuisance, and we have heard of calls for some plan to remove it without harming the combs. If either of these substances could be used in domestic life it would prove a bonanza, of a partial nature at least, to the apiarist; but I have no idea that any thing of the kind will ever come to pass.

I wonder how many GLEANINGS readers are aware that one of the secrets in selling extracted honey in tumblers is to have it properly labeled. H. G. QUIRIN.

Bellevue, O., Dec. 14.

[Yes, indeed; this is a very important point. —ED.]

COAL-OIL-CAN FRAUDS.

After reading the following letter received by a Chicago honey-dealing firm, from one of their customers, we think you will agree with us in saying that it is a fraud to use second-hand coal-oil cans for holding honey:

Dear Sirs:—I am very sorry to inform you that I have just returned all of your last shipment of extracted honey. I thought that the California sage was all right, but I found, on heating a couple of cans (as we always do to melt the grain), that the honey had been packed in coal-oil cans, and I did not detect the fraud until the heat developed the oil. You will find that the honey is worthless, and should be returned to the producer at his expense. One can seemed to be worse than any of the others, so I emptied it into a clean can and cut the top out to see just what condition it was really in. On the inside I found that the oil had not been washed out at all—the sides of the can are covered with oil so much that the honey doesn't stick to the tin. I sent the empty can along so that you can see for yourselves.

Just examine that empty can—it shows premeditated fraud—the cap has been changed from the original top to the bottom for the purpose of covering up the stamp of the oil company. Now, I claim that the commission merchants are largely to blame for such vandalism. All you would have to do would be to notify California producers that oil packages would not under any circumstances be accepted. Yours very truly,

HONEY-MAN.

We can not understand how any bee-keepers can have the "gall," or the poor business sense, to use cans that have had coal oil in them, for holding honey, when they ought to know that the flavor of honey is very easily affected and totally injured. What poor policy it is to try to save a few cents on cans, and run the risk of having the honey ruined and made wholly unfit for use! Surely, no readers of the *American Bee Journal* would be guilty of such an act; but if they know any bee-keeper using old coal-oil cans for honey, they should try to stop it if at all possible; for by the wrong-doing of one, or a few, the whole fraternity must sometimes suffer.—*American Bee Journal.*

[I say amen, and hope our brother-publishers will pass it (this item) around.—ED.]

BEE-PARALYSIS.

On page 63, Jan. 15th GLEANINGS, Mr. Ford gives two or three points about this disease. Your senior editor may be right in his account of what was said in Atlanta on this subject; but my recollection differs a little from his. I understood that what was said about queens and bees not carrying the disease referred to foul brood only. If I had understood that it referred to bee-paralysis I should have kicked vigorously; in fact, I did say there, that, so far as I could judge, diseased bees was the principal way of transmitting the disease. My own experience points in the direction of the fact that sending queens from a distance has been a serious cause of the disease in my apiary.

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My experience differs from Mr. Ford's in that my Italians have been much more prone to the disease than blacks. The disease is so erratic, however, that we can learn the real facts about it only by comparing experiences of many men with it. No one of us has experience enough with it to be sure we know any thing about it, except that we want as little of it as possible. I somewhat doubt your being right in your footnote. My own experience has covered at least 150 cases of the disease, if not more, during the past 15 years, both in Iowa and in Florida. If Mr. Ford or any one else has had more experience than that, they have my hearty sympathy.

Stuart, Fla. O. O. POPPLETON.

[When I appended the footnote in question I was under the impression that Mr. Ford had had more experience with bee-paralysis than any other bee-keeper. You probably have had more cases of the disease than Mr. Ford, and we award the palm to you—a distinction that you perhaps would just as soon not have.—ED.]

GRAFTING QUEEN-CELLS: WHEN WAS IT FIRST PRACTICED?

Dr. Miller asks, "Who first invented inoculation, or the plan of transferring a worker-larva to a queen-cell?" and was it known so long ago in this country as 1879?" To the first question I answer, I don't know; to the latter, yes. I raised about 80 queens by this process in 1876, and about the same number in 1877, and have practiced the plan more or less every year since. We call it "grafting," and think it a more appropriate name. My plan has been to remove the queen from a strong colony, and let them raise cells. At the end of 4 days remove the larvæ from all cells started, and replace with larvæ from a choice queen. By this plan I have raised some very choice queens. Occasionally they will tear down a few of the cells, and sometimes raise others. To guard against the latter, cut the cells out as soon as grafted; fit them into empty comb, or comb containing no brood; then all the cells perfected in this comb will be "grafted" cells. I think the *natural* cells, filled *naturally* with royal jelly, preferable to artificial cell-cups. In the former you find the cells well filled with royal jelly; and by selecting larvæ as young as will "lift" from the cell, you have them abundantly fed from the start, but not so in the latter; and the lrvaæ are liable to be neglected too long before being properly fed, unless you are careful to give them an *abundance* of royal jelly when you graft. R. TOUCHTON.

Santa Paula, Cal.

A COAT OF OIL VERSUS PAINT FOR HIVES.

Mr. Root:—Solomon says, "There is nothing new under the sun." When I read E. B. Thomas' article in the *American Bee Journal*, I said to myself, "practical men know better." They know that oil is but the medium to mix with a substance to spread it on the surface of wood or other material, to protect it from the action of the elements. Oil, while it may penetrate the wood, and for a time protect its surface, soon washes off and *out*, leaving the material unprotected. He says the coloring matter fades and becomes chalky. Granted; but this only proves the oil has gone out. The mineral remains some time after. A coat of oil on this renews its vitality to a certain extent, but not equal to a new coat of pigment applied. The application of a coat of oil may seem cheaper; but when we take into consideration the fact that this will endure but a short time, while a coat of paint will endure three times longer, the difference is on the wrong side.

Excuse my troubling you; but I consider it a duty to prevent the general public being misled. Finally, avoid all ready-mixed paints except of guaranteed purity. Use only pure white lead and linseed oil, mixing and tinting it yourself.

B. F. ONDERDONK.

Mountain View, N. J., Jan. 7.

[This is right according to our experience.—ED.]

ALFALFA IN OHIO.

Mr. Root:—I bought of you last spring 10 lbs. of alfalfa clover seed, and sowed it on with oats. I also sowed red clover alongside of it. I find at this writing the alfalfa is thick and green all over the ground, while the red clover is nearly all gone. Now, I want to ask you if alfalfa will do well to sow this spring on ground that was sown in wheat last fall. If not, when is the best time to sow it, and how sow it? We sow our red clover here on our wheat in March; and if alfalfa would do to sow the same, I should like to try it further this spring.

Quarry, O., Feb. 16. W. J. MIRACLE.

[Why, friend M., you seem to be better able to advise in regard to sowing alfalfa than we are. I am rejoiced to know that it has been so much of a success right here in our own State. My impression is, that it will not answer to sow it as early as we sow red clover. The oats you put in were probably sown late. The best success I have known around here is where the ground was very rich, either naturally or artificially, well underdrained, and where the seed was put in pretty thick, say 15 or 20 lbs. to the acre. Some writers have suggested even 25. It does not pay to be saving of the seed when the crop is to stand almost a lifetime. Get a good stand on good rich ground carefully prepared, and you have it year after year as long as you live—i. e., if it is done right. There must not be standing water at any season. Alfalfa will not bear it. I think it may be put in the ground any time from April until June 1, or perhaps later.—A. I. R.]

MALTED AND COWS' MILK FOR BEE-FEED.

I see in GLEANINGS that father Langstroth suggested the use of milk and honey for feed for brood-rearing. In the spring of 1883 I and Dr. N. P. Allen, Ex. Pres. of the North American Bee-keepers' Society, at his apiary at

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Smith Grove, Ky., made a series of experiments in the use of milk and honey, and of milk, honey, and eggs. All the tests gave help to the bees when too cool for pollen-gathering; but the trouble with milk in all the tests we made was that it would sour in a short time in the feeder; and, also, if bees stored a very little in excess of consumption, it would sour in the combs and become an injurious compound; but if it could be so fed that only a daily consumption was mixed and taken up by the bees, we thought that, during cold and backward springs, it would be a help. But we would not advise its use at other times, and then only sparingly. I have never given it any further trial. We found that the milk, eggs, and honey made the best food, being richer in the albumens, but it would sour sooner. The mixture was similar in character to the custard-pie mixture, except it was made thinner. All was boiled together. I have found by trial that, for pollen, to feed cotton-seed meal outside in a covered box is good for feed when pollen is scarce. JOHN CRAYCRAFT.

Astor Park, Fla., Jan. 8.

MALTED MILK.

In GLEANINGS, p. 142, the question is asked by F. Greiner, "What is malted milk?" The editor replies on the following page, "I can not tell you what is malted milk. Very likely it is a secret preparation known only to the manufacturers."

Now, as I happen to know something about that preparation, having used it myself, and prescribed it for invalids, I beg leave to say that, in my opinion, it is the best preparation of milk ever put upon the market, for invalids, as a recuperative diet for debility, or a weak stomach. It is also very palatable. Being of recent introduction, it appears many are not acquainted with it or its qualities, but it is pretty generally known and used by physicians, and kept in stock by many druggists.

I presume it never entered into the heads of the manufacturers that apiarists would want to use it to feed to bees. Having no personal interests in its sale I would refer you to the manufacturers for further information, and samples, which they have been very liberal to supply. Malted milk is manufactured by the Horlick Food Co., Racine, Wis.

Pleasant Hill, Ill. A. MOSHER, M. D.

QUESTION OF GRADING NOT DOWNED.

It would seem that the question of grading will not down. In a late issue of GLEANINGS you spoke of bringing up the subject again. I think the matter was discussed all that was necessary. What is wanted now is action. All hands are pretty well agreed as to how to grade. Dr. Miller's grade suits me well enough, with the exception of one thing: A few cells uncapped next the wood should be allowed; otherwise, where honey is made very fast, the very choicest of the honey will have to grade No. 2.

My plan now is to print small cheap slips, reading something like this: "The honey in this crate is graded according to the rules laid down by the Miller grade, which is as follows: Parties buying or selling honey will please quote this grade."

Fancy.—Combs straight, white, well filled, firmly fastened to wood on all four sides; all cells sealed; no pollen, propolis, nor travel-stain.

No. 1.—Wood well scraped, or entirely free from propolis; one side of the section sealed with white cappings, free from pollen, and having all cells sealed except the line of cells next the wood; the other side white, or but slightly discolored, with not more than two cells of pollen, and not more than ten cells unsealed beside the line of cells touching the wood; comb fastened to the wood on four sides.

No. 2.—Three-fourths of the total surface must be filled and sealed; wood well scraped of propolis.

No. 3.—Must weigh at least half as much as a full-weight section.

For the classes of honey I would suggest the four already in use, sufficiently understood from the names alone; namely, *light, amber, dark, mixed.*

The grade marked on the crate would designate the contents. Larger copies could be printed for the use of commission men and dealers. A slip could be put into every crate sold, and placed where they would do the most good. Having once gained a foothold it would surely spread. THOS. ELLIOTT.

Harvard, Ill.

The Miller grading referred to I take from our issue for June 15, 1892, page 454.

This was a compromise of the grading suggested by J. A. Green and W. C. Frazier—the grading proposed at Albany, and the one at Chicago, combining, as I understand it, according to the best judgment of the doctor, the best points in all. Some of the former gradings were too exact, and too difficult to comply with. Others were too wordy. If I remember correctly, no other grade since that time was suggested, and I am going to assume, at least, that our readers at the time had no particular objection to it.

But, say, friend Elliott, if I have selected the right grading, and Dr. Miller proposed no other, his No. 1 does permit of a line of uncapped cells next to the wood.

I was sorry that the subject of grading was dropped some years ago, without coming to any decision. I have always felt that a poor grading was better than none at all, providing that all could adopt the same system in referring to their qualities of honey. Now, lest we get into the same snarl we did before in criticising and suggesting until no grading was left, I would suggest that, if this Miller grading is not so "awfully" bad, we adopt it.

I am of the opinion the bee-journals can do as much as or more in this line than any association or convention of bee-keepers. If they (the journals) were to agree on some system of grading, and then request all their commission men to quote prices on honey according to that grading, it would not take very long before it would be universally applied. GLEANINGS stands ready to co-operate with any of its cotemporaries.—ED.]

WINTER FEEDING; HOW TO DO IT IN THE CELLAR.

The question has been asked of late, how to feed a swarm in the winter, that is short of

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honey. I examined my bees Jan. 8, and found several colonies that would require feeding. I took the lightest one and placed it about five feet from a hot stove in my cellar, and put a shallow feeder, holding nearly 5 lbs. of syrup, on top of the frames, and filled it with warm syrup; laid two cobs across the feeder so the bees could readily enter it, and then covered all with a warm cloth. I then put on the cap, and filled it with warm bran-sacks; closed the cover, and the job was done. In the evening the feeder was empty, and I refilled it; and this morning it was empty again, and the bees were quiet. I shall feed each of them in the same manner. Ten pounds is all I deem it advisable to feed at one time, as more than that of unsealed stores might sour, and cause dysentery. I set the hive back of the stove, and covered the front with a bran-sack, and the bees were not at all troublesome in coming out and flying to the windows. They might be later in the season. I then would confine my feeding to the night time. If I had a swarm in a box hive that required feeding I would place the feeder filled with warm feed underneath it, and close the entrance and ventilate it from the top if necessary. GEORGE W. BASSETT.

Barre, Vt., Jan. 9.

DOUBLE OR SINGLE WALLED HIVES.

Dr. Miller:—I am about building me a lot of new hives. I winter on summer stands. Which are best?—double or single wall hives? Thermometer drops to 20 below zero at times.

Which are best for the bees to build up in in spring, for fruit-bloom? Hives are the L. pattern and frame. GEO. L. VINAL.

Charlton City, Mass., Jan. 14.

[Dr. Miller replies:]

1. All things considered, I think you will like the single-walled hives best. Careful experiments at the Michigan Experiment Apiary failed to show any real advantage in double walls; and even if at times there should be advantage it would be overbalanced by some disadvantage at other times, together with increased weight and bulk. But a comparative trial of the two kinds might settle the thing more satisfactorily to you.

2. Hard to tell. Perhaps there's no real difference. In a cold time the double walls would be an advantage in keeping the hive warmer; on a sunshiny day, a disadvantage in keeping the heat of the sun out of the hive.

Marengo, Ill. C. C. MILLER.

DEATH OF AN OLD BEE-KEEPER AND MISSIONARY IN PALESTINE.

Mr. Root:—My dear father departed this life after having passed forty-six years in the mission station on Mount Zion. Only recently dismissed from his post, he died near Bethlehem, at Urtas, a small Mohammedan village where he had begun his Palestine career almost half a century ago. His last will was to be carried to his last resting-place in Bethlehem, by the Arabs, which happened on the 20th day of January. The Mohammedan women of all the environs followed the body, singing their death-songs in praise of the departed, and wishing long life to those left behind. Even the Mohammedan friends were unanimous in repeating, "His works shall follow him." My mother writes, "I prayed to God to spare him yet this once; but now he is gone home in peace. God's will be done."

He was the cause of our all following bee-keeping. His apiary near Solomon's Pools, and when friends Jones and F. Benton visited him on Mt. Zion, was the first to furnish the Holy Lands, at the beginning of the eighties. For further description, see GLEANINGS, page 672, Sept. 1, 1893. Father died at the age of 73, deeply bewailed by his widow, daughter, and five sons. PH. J. BALDENSPERGER.

Nice, France, Feb. 7.

[It seems remarkable, but it is a fact that the very country where Christianity first took its start must now receive missionaries of that same gospel. The soil that received the seed was not the soil that would grow the great Tree of Life. It is a pleasure to know of the great work of your father.—ED.]

BROKEN COMB HONEY CANDIED; WHAT TO DO WITH IT.

Last week I wrote you to know if there is any thing you know of to put in honey to prevent it from candying, as I have some comb in jars, and filled with extracted, and can not heat it or it will ruin the comb. W. L. RICHMOND.

Lexington, Ky., Dec. 24.

[There is no way to prevent granulation of honey without heating. If you have broken comb honey candied, we would recommend you to put it into a solar wax-extractor. The wax will rise to the top; and the honey rendered liquid by the sun's heat, while not of first quality, will be very fair extracted honey.—ED.]

ADULTERATED HONEY; HOW IT CUTS DOWN THE PRICE OF PURE HONEY; FIVE-BANDERS POOR.

In GLEANINGS for Jan. 1, Mrs. L. C. Axtell says their market is flooded with a sweet that is called California honey, put up in glass tumblers. This is exactly the condition in all the towns around, and especially in the city of Galva. The tumbler has a small piece of comb honey in it. Some of it is light, and some amber. I can not believe it is pure honey, as it tastes more like a poor grade of corn syrup. I was in one store, and tried to sell them some comb honey, but they said they could sell double as much of this California honey as of my comb honey, as it was so cheap—only 10 cts. per lb., while Colorado comb sells at 20 cts., and I sell mine for 12½ to 15. If all the towns in the State are flooded as they are here, some

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Chicago firm is surely making a big thing of it. The Bee-keepers' Union ought to have a man in Chicago to look after these swindlers, and give them a warming-up. I think the Union should be so arranged that it would take this adulteration in hand.

A word in regard to the five-banded bees. I got queens of this much-praised strain, like many others, and kept breeding from them, but only to find out that they were the worst stingers and the poorest to winter of any bees that I have tried, and they certainly were not in it as honey-gatherers. No more such bees for me. Three-banded leather-colored bees are much more docile to handle; or even a cross between them and blacks is not so bad, especially as honey-gatherers. G. E. NELSON.

Bishop Hill, Ill., Jan. 29.

FIVE-BANDERS AHEAD THIS TIME.

Last summer I introduced a tested three-banded Italian queen from Hutchinson, and a tested five-banded queen from Laws, to two colonies of black bees. They began laying within 24 hours of each other. The two colonies were so near of equal strength, and so even in their stores of honey and in amount of brood, etc., at the time of introducing, that I could not see any difference. Each colony was in good temporary shape, but was in need of some fall honey flow for winter. The bulk of their subsequently gathered stores came in after the two colonies had a large preponderance of yellow bees (vervain, willow-herb, and erigonum in late August and September); and I could not see any difference in the activity of the two colonies. But now, after the middle of January, the five-banded colony is nearly twice as populous, and, of course, the bees fly much more freely in sunny weather. In fact, the five-banders are all right, while the three-banders are going to need careful treatment to make them pull through till the permanent honey-flow in the spring. I recognize that this comparison of two individual colonies under such like conditions does not furnish any conclusive testimony; but I know it is just as good as lots of the adverse testimony that is sent you.

The winter has been cold and dry. Rain came unusually early in the fall. December and first half of January were cold and frosty and dry. Farming was much delayed. But a glorious storm has just prevailed, and the prospect has wonderfully brightened. We may have a good season after all. Farmers lost faith too soon. A. NORTON.

Monterey, Cal., Jan. 20.

THE PROPOSED CONSTITUTION OF THE BEE-KEEPERS' UNION.

I have been reading the constitution of the North American Bee-keepers' Union: and as you invite suggestions from bee-keepers on the same, I would suggest that article 5 be changed to read as follows: "Any person may become a member by paying to the secretary an entrance fee of $1.00, and each year thereafter an annual due of 25 cents. The annual dues shall be paid on or before Jan. 1st of each year; and if not paid within three months thereafter, such members shall be suspended, and shall receive no benefit from the society thereafter unless reinstated; but any delinquent member may be reinstated at any time by paying all back dues and one year's dues in advance."

I believe that, by reducing the dues as indicated above, the membership would be increased so that, in five years, the treasury will be in better shape than it will be to keep the present high rate. But the paltry dollar is not what is needed at present so much as increase of membership; and if the dues were reduced to 25 cents, nearly every bee-keeper could keep up his membership dues, after paying the admission fee, without feeling it as a burden as he does now. I am not a member, and do not expect to be unless it is made less expensive than at present. Two seasons without a pound of honey to ship make one feel too poor to indulge in expensive luxuries. S. H. MALLORY.

Decatur, Mich.

REPORT ON RAPE AS A HONEY-PLANT.

You ask about rape. I got a few pounds of you last spring, and it grew well here. The bees worked on it lively, but it don't pay to sow it for honey alone. I would ask you where to find a market to sell it.

Clarkson, S. D. DANIEL DANIELSON.

[The rape that is used as a honey-plant is worth wholesale about $5.00 per 100 lbs. It is used for feeding canaries, for making oil, and the plant is used to some extent as a forage-plant. But the new Dwarf Essex rape has taken the place of it for the latter purpose. I presume it can be sold wholesale to seed-dealers. I will make an effort to find a market for it.—A. I. R.]

FAVORS THE FIVE-BANDED BEES.

Mr. A. Norton, in GLEANINGS, calls for fair play in regard to five-banded bees, and wants all to give public testimony. With me they have proved to be the best bees I ever owned, all things considered, and I have given them quite an extensive trial. J. F. GINN.

Ellsworth, Me.—*American Bee Journal.*

The penalty for selling adulterated honey in this State is $100, or three months in jail, or both. R. E. ZIMMERMAN.

Selma, Cal., Jan. 9.

[Good for California! Now if all the rest of the States would follow suit, and fine and imprison a few, right and left, to let the great wide world know that we mean business, then we might be making some headway. I am proud to say that our own State of Ohio is just now doing some vigorous work in the way of enacting laws imposing severe penalties for adulterating any thing in the way of food or food products.—A. I. R.]

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SINCE our editorial notice, stating that F. I. Sage & Son had failed, we have received corrections from several sources, stating that they had not failed, but had "skipped out for parts unknown." Only a little stock was left in their store, and those who were so unfortunate as to have sent them a consignment will probably lose it. Up to within a month or two they appeared to have done a perfectly straight and honorable business. The store is now in the hands of the sheriff.

F. H. JEWHURST, of Richmond, Va., sends us a sample of crimson-clover honey that I should call fully equal in every respect to any clover honey I ever saw. It is very thick; in fact, it could hardly be made to run out of the bottle in a warm room. There is no trace of candying, and the flavor is just exquisite. The color, of course, is a light straw—the regular orthodox honey color. I wish friend J. would tell us a little more about it. If all honey from crimson clover is to be like this, then bee-keepers may rejoice.

THE California Honey-producers' Exchange gives every evidence of being a success. It has, or soon will have, good financial backing; is well officered, and is organized on thorough business principles. The California bee-keepers who are members of it will get supplies cheaper, and better prices for their honey. If this Exchange shall prove to be a success, no doubt similar exchanges will be organized in other sections of the country. GLEANINGS will help in every way possible. In the mean time, bee-keepers of the land of gold should rally to the support of the Exchange.

IT will be remembered that, a few issues ago, a movement was started to build a suitable monument over the grave of father Langstroth, said monument to be purchased with subscriptions received from bee-keepers. I regret to say that so far only a few subscriptions have been received. I can not believe it is because of a lack of appreciation nor because times are so very hard, but because it has been put off. I wish to say that even small subscriptions are very acceptable—amounts of 50 cts. and $1.00. These, as fast as received, will be credited and acknowledged; but if sent with other remittances, be sure to designate which is for the Langstroth monument fund. I believe that all the supply manufacturers, if not a good many of the dealers, should be willing to give more largely than bee-keepers who buy of them; but in the mean time let the small subscriptions come in. It would indeed be a reproach upon us, if, having *attempted* to raise funds for a suitable monument, we should fail.

BENTON'S BEE-BOOK; SHALL THE GOVERNMENT ISSUE A FREE EDITION FOR CIRCULATION AMONG BEE-KEEPERS?

THE following, in relation to Benton's bee-book, was received from the Hon. Geo. E. Hilton:

Dear Ernest:—I shall read with interest Bro. Smith's objections to the publication of Mr. Benton's Bulletin No. 1. I can not imagine what his objections are, unless it is the number, and we must not expect all we ask for in this world. The book is all electrotyped, and the cost of printing is very small. My Senator, Mr. J. C. Burrows, informs me his joint resolution for the printing of 15,000 has passed the Senate, and it will pass the House. I have sent in a list of all my customers of 1895, and some others; and I learn they have all been notified of my action, and that they will receive a copy as soon as published. So you see Michigan will get her share. In addition to this I shall get allotments from from my Senators and Congressmen, that I shall distribute to my new customers the coming season. Yes, I am a protectionist, and believe in looking out for my friends. It is "bread cast upon the water," and it is beneath the dignity of a nation like this to publish only 1000 copies of such a work. You know it would not supply either Ohio or Michigan alone.

Fremont, Mich., March 6. GEO. E. HILTON.

The principal objection seems to be against the printing of such a large edition, at the expense of the general public. Surely an edition of 15,000 copies, now that the plates are gotten out, would cost little or nothing, comparatively; and I myself believe that the edition will do good in educating a certain class who feel that they can not afford to buy any bee-book or bee-journal. I am selfish enough to believe that, having received this copy, a thirst for more information will be seen in the increased demand for bee-literature sold at a price, rather than to discourage it. Personally I am in hopes that the 15,000 will be printed.

OPEN LETTER TO THE BEE-KEEPERS OF THE UNITED STATES.

THE following, just recently come to hand, will explain itself:

Fellow Bee-keepers:—We have prepared for circulation a petition asking the Secretary of Agriculture of the United States to take steps to secure and introduce *Apis dorsata*, the giant bee of India, into this country. It is a duty that the government owes and is willing to render our industry (see Report of Secretary of Agriculture, 1893, page 25). Owing to the rapid disappearance of the bumble-bee, the introduction of these bees will soon be a necessity in the successful growing of red clover for seed, if for no other purpose. That these are a distinct and large race of bees, there is no doubt; but of their practical value we know nothing, and never shall until we have thoroughly tested them. As progressive bee-keepers and honey-producers, we should not rest until every spot on earth has been searched, and every race of honey-bees has been tested. We should do it for the advancement

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of scientific and progressive apiculture, for ourselves, and for posterity. Prof. Cook says: "It is not creditable to the enterprise of our time that the Orient is not made to show its hand, and any superior bees that may be in existence in Africa, India, Ceylon, Philippine Islands, brought here for our use and test." Our association has taken hold of this with sincerity, and expects the united support of the bee-keepers of this country; and with their support the end of the nineteenth century will witness a new era in apiculture in which the bee-keepers of the United States will take a leading part. Life is too short for further delay. We are determined to succeed, and want your active assistance.

EXECUTIVE COMMITTEE,
Ontario County, N. Y., Bee-keepers' Association.

Copies of these petitions may be obtained by any one who will circulate them, by addressing W. F. Marks, Chapinville, N. Y.

I have little faith that the *Apis dorsata* can ever be domesticated so as to prove to be of any practical value in the production of honey; but it may be of incalculable benefit for the fertilization of such flora as red clover.

CONTINUOUS WAX SHEETS FOR MAKING FOUNDATION, NOT NEW.

QUITE a number seem to have the impression that we claim for the Weed invention, among other things, the idea of making a *continuous wax sheet*, so that it can be wound up on a bobbin, and from that unwound to a foundation-machine. Neither we nor Mr. Weed ever made such claims. While the making of a wax sheet 100 yards or more is a *feature* of the new process, it is in no way mentioned in the claims of Mr. Weed's patents now pending. His invention relates to a specific method of producing wax in the shape of a long belt, as it were, but by a plan entirely new, and differing wholly from the *modus operandi* of dipping (that is, by immersing a strip of board into melted wax); and the new process also gives a different product, superior in point of transparency and toughness — tougher because it will resist heat and cold better and the tendency to stretch in the hive while being drawn out by the bees.

The idea of making foundation in a continuous sheet or length, so that it can be reeled up on a bobbin, is quite old. It has been used a good many years in Germany. Indeed, a German work in our possession shows a continuous wax sheet reeled from one bobbin to another. Such sheets were used to a greater or less extent by D. A. Jones, of Beeton, Canada, and by M. H. Hunt. The two latter simply lapped or welded the sheets together before they went through the rolls. I am in receipt of a sample of foundation, taken from a continuous roll, made on a machine at least three years old. This sample came from Thomas Evans, of Lansing, Ia. In looking back over our old volumes I ran across an article giving the *modus operandi* in full for making foundation from one continuous sheet. This article is found on page 514, for 1884. The writer, J. R. Park, of Laverne, Tenn., not only tells *how* to make continuous sheets, but how the same may be reeled up on a bobbin, and taken off from the foundation-machine, and reeled on to another bobbin. There are others who made such continuous sheets; but the instances I have already given are sufficient to show that the idea is old. But all the continuous sheets that have been made heretofore differ materially, so far as I can find, in the *method* of making, and in the product, from the Weed continuous sheets.

AMALGAMATION PROTESTED.

SEVERAL articles have appeared in the various bee-journals, and more will appear in our columns, strongly protesting against amalgamating the Bee-keepers' Union with the N. A. B. K. A. While I have advocated this step, I shall do so no more *if*, in the judgment of our wisest bee-keepers, it is not best. So far as I am concerned, I don't care what is done, only so the Union or something shall take hold of this adulteration business and fight it to the end. We need more fighting and legislation.

T SUPERS VS. WIDE FRAMES, ETC.

THE letter below, received from R. L. Taylor, will explain itself:

Ed. Gleanings:—One of Dr. Miller's Straws in GLEANINGS for Mar. 1 reads: "The best surplus-arrangement is asked for in the question-box of the *A. B. J.* T supers have a majority of votes, and wide frames come in second. Section-holders have one vote."

On consulting the *A. B. J.* I find that question in the question-box in the issue for Feb. 13, 1896, and I take it the answers there given are the ones to which reference is made in the above-quoted Straw. Now, be it known that Dr. Miller is the mathematician as well as the lexicographer of the bee-keeping fraternity, and I would not venture to dispute his "count;" but I am a strong partisan of the wide frames; and to show how one's feelings may affect his figures, I wish to give my count. Instead of a majority in favor of T supers, my prejudice will not allow me to count more than six out of 22 that prefer them; and one of the six thinks he would use them only if he produced comb honey; and the six are just half of what would be necessary to make a majority, as my eyes persist in seeing it. Then instead of wide frames standing second they look to me to stand square up with T supers with six votes; and for section-holders, I can not, do the best I can, make less than six votes, while we are bound to believe they have but one. Four others were noncommittal. And you, Mr. Editor, though so young, are you thus early in life so well acquainted with the power of prejudice that you did not dare to count, through fear of being thrown, and hence cheerfully exhibited the white feather as you do in your note? I do not suppose that it is necessary that the doctor should make a recount.

HEATING HONEY WITH WAX.

I very much doubt the correctness of your position, that honey heated with its pure virgin wax, as it comes from the sections, will receive color or

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flavor from such wax at a temperature below 165°. Of course, "chunk honey" and "old discarded combs," as you say, when melted would yield honey "off" in both color and flavor; but that comes from stains, cocoons, and bee-bread.

I will repeat the experiment when I can get some good white extracted honey; or, if you could send me 3 or 4 lbs. each of, say, two varieties, and charge to me, I would do it forthwith. R. L. TAYLOR.

Lapeer, Mich., March 5.

Just as soon as I had read the first few lines of the above letter, and before I could know what his *count* was, I laid his manuscript down and picked up the *American Bee Journal*, and forthwith began checking the votes. When through I found the results to tally exactly with Mr. Taylor's. Well, this is a good one on the doctor. I did not suppose he *ever* looked through the eyes of prejudice.

You seem a little surprised to think that I did not look up the question-box referred to, and verify the result myself. Why, I simply assumed that the doctor was *right*, because I have never been able to catch him on figures or statistics.

In regard to heating honey, I shall be very happy indeed to send you samples for you to try. Very possibly the results will tally with your former experiments. If so, no one will be more pleased to acknowledge it than I.

But I was a little taken back at what you said in the *Bee-keepers' Review*, after referring to the experiment, regarding my footnotes in general, to the effect that they are written "on the spur of the moment," "without thought," etc. Inasmuch as you imply that your feelings were "harrowed," I take it you would not have expressed yourself thus unless you were smarting under what you considered an unfair fling from me. At all events, I am not thin-skinned, and am quite willing to receive criticism, and to make the best of it, even though, in this case, I feel that your strictures were overdrawn in view of the hundreds of letters taking the contrary view.

If you could have had before you what I wrote later in regard to honey-heating, and too which you reply above, I am rather of the opinion that your statements would have been considerably modified. Of course, you do not forget that I have spoken highly of your experiments and the results secured, even if I have at times criticised. I shall continue to watch your experiments with interest.

COMMISSION MERCHANTS; SELLING AROUND HOME, ETC.

WHEN you ship honey to commission merchants, be sure to preserve all correspondence relating to the shipment—both the letters sent to you, including freight-bills, and copies of your letters sent to them. In case any difficulty arises it is much easier for us to suggest a satisfactory adjustment.

Although I called for reports of unsatisfactory deals with commission houses, only a very few have come in. Some of those that were submitted showed that there was as much blame to be attached to the bee-beeper as to the commission house; and when the latter have been clearly at fault, they have *so far* shown an inclination to make a fair adjustment. Some commission men are rascals; but those who are quoting prices for us are, so far as we know, reliable and responsible. Even with the best of them, complaints will sometimes arise—not because they are disposed to be dishonest, but because the bee-keeper sometimes does not understand all the facts, or, what is more often the case, puts his honey up in such a slipshod manner that it can not bring market prices, as I explained in our last issue.

On account of the severe competition in the great centers of trade, I would always advise bee-keepers to sell their honey around home first, all they can. In most cases they will realize better prices. And this brings me to the subject of

PEDDLING HONEY.

I know that peddling, in a certain sense, seems to be disreputable, and beneath the dignity of a good many. I know, too, that it is unpleasant to call from house to house trying to sell honey. It is discouraging, too, to be told that your choice pure honey is "adulterated stuff," and insulting to have the door slammed in your face. Well, it is not strictly necessary that you peddle from house to house. Place honey on sale at the local groceries, and then create a demand by going around giving away small samples, and telling them that your honey can be had at So and So's. Why! I know of one paint firm who, in order to introduce their goods, make a proposition to the local dealer that, if he will handle their goods, they will go around and drum up trade for him. This they do; and the dealer, without any drumming on his part, simply supplies the trade that comes to him for that paint. This paint concern handle pure goods only, and they are willing to stake their reputation upon it. They know that, when the people once know the character of their goods, they will keep right on buying them. Well, you handle nothing but the very best pure honey. If you can manage to go around town and create a favorable impression, and get folks to sample it, they will buy quick enough, providing they can believe they are buying your honey; and if they can trust their grocer they will buy it, and you in the meantime will realize several cents more a pound than if you ship it to the city, where it will be in close competition. Oh, yes! you say you do keep your honey on sale at the groceries, but it doesn't sell. But have you yet drummed up the trade by going around with samples, or as the paint firm referred to do?

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We shall be having, from now on, several articles on peddling. I believe this is a most important subject for bee-keepers to discuss; and I would call special attention to the article in this issue, showing how honey may be sold on the wagon, patent-medicine style. Even if we stick up our noses at the patent medicine, it is perfectly legitimate and proper for us to follow the *methods* the agent adopts for selling such goods, providing they are fair and honorable.

I should like to hear of other plans, and hope those of our subscribers who have been successful in disposing of their honey around home will give us their experience.

A CHAT WITH AN OLD HONEY-PEDDLER; HOW TO MAKE OFF GRADES OF HONEY MOVE OFF RAPIDLY.

Later.—Since writing the above I have had a pleasant call from Mr. Chalon Fowls, of Oberlin, who makes quite a business of selling honey around home. He has built up quite a trade in Oberlin, Elyria, and Lorain. The two latter are towns about nine miles distant from Oberlin. He sells nothing but choice honey, puts it up in packages himself, and delivers it with his horse and wagon to the groceries. They all know him as the honey-man, and the one who sells only pure goods. Knowing that he had had a large experience, I read over to him what I have written above, and asked him for suggestions and corrections.

"How about selling honey on commission?"

"I have never had any experience in that line," he replied. "I can sell all I can produce, and more too, direct. I notice," he continued, "that you have not touched much on the matter of educating consumers on the uses of honey. I explain how it may be used for cooking. We use honey largely in our house in place of other sweets, for making cookies and the like; and dark honeys are just as good as the best. Honey that I take in the solar wax-extractor, and that which is a little off and dark, will make just as nice cookies as the very nicest and best extracted honey. When out peddling I take with me, written in duplicate with the typewriter, one or more recipes for cooking with honey—such recipes as our family have tested and *know* to be good. Sometimes I take with me a honey-cake made with some dark off-grade honey I am offering. I give a small sample of this cake to the lady of the house; and if she likes it (as most of them do) she will buy the dark honey for cooking, and the first quality for table use."

"Say," said I, "why not send us copies of these choice recipes? We will get out a lot of them on the press, and then I think it would be a good idea to put with them something in the line of Why Eat Honey? One of the best things I have seen in this line is something that appeared in the last *Review*.

"I notice also," said Mr. Fowls, "that you have said nothing about the fact, now recognized by nearly all physicians, that honey is the most easily digested of any of the sweets. I have had several calls for honey by invalids who said their doctors had recommended them to eat honey in place of any other sweets."

"Do those people come again?"

"They do, and say it agrees with them."

"Prof. Cook, you know, has long maintained that honey is digested nectar."

"Do you," I said, changing the subject, "sell to groceries as well as peddle out the honey?"

"I do," he said; "but some of them do not like it, and won't buy of me."

"There is no reason why they should object, for they know you to be the honey-man of the town, and you have a right to sell your own product."

"Yes," said Mr. Fowls, "and I am very careful not to sell under the grocers' prices, and tell them so at the time of making my deliveries. Then when I peddle to the consumers it is understood they can get it of me or at the groceries."

"Do you ever run across adulterated honey?"

"In Elyria I saw tumblers put up containing glucose and honey. It was actually labeled 50 per cent glucose, 50 per cent honey."

"That shows," I said, "that stringent pure-food laws in this State are having some effect. But how in the world can they sell such stuff if the consumers know what it is?"

"Oh!" said he, "foreigners buy it because it is cheap."

"I will tell you what I think," said I. "If an analysis were made, I believe that about 99 per cent of that so-called honey and glucose would be pure glucose, and the other one per cent would be a little piece of dried comb stuck in, to give it the appearance of honesty. The concern that puts it up is probably afraid to put it out without labeling it as adulterated. I should be inclined to believe they would take advantage of the statement on the label, and make a larger per cent of adulteration than was called for."

"Say," said Mr. Fowls, changing the subject. "I wish you would solve for me this hive question. I want some more hives, and I don't know whether I want 8 or 10 frames."

I drew a sigh, and asked him to draw up to me a little closer.

"Let's see. You produce extracted honey mostly, don't you?"

"Yes, sir."

"Well, then I would recommend the eight-frame size, using two stories, one above the other."

"I am afraid I can't get brood enough in one eight."

"But"—

Oh! I forgot that we had closed down on the large-and-small-hive question.

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OUR HOMES.

Ye are bought with a price.—I. COR. 6:20.

I do not know just where it happened, and I do not know just *when* it happened; but something like the following occurred, so I am told, not a great many years ago. There was to be an auction; and among other things a lot of slaves were to be sold. They were standing about waiting for the time when the auctioneer should commence. There were men, women, and children who were to exchange owners. Some of them were careless and indifferent. I suppose most of them had been sold before, and therefore took it in a sort of philosophical way as the African people. the greater part or them, are in the habit of taking such things. A colored preacher spoke from our pulpit not many days ago. He was not only a scholar, but an orator of no small talent. At the close of his remarks he spoke of the good qualities especially pertaining to the colored people. The last among the things enumerated was hopefulness. He said there was no people on the face of the earth who were so bright and hopeful under all circumstances as the colored race. They would sing their jubilee songs, and rejoice, even under the most untoward circumstances. They are always looking for something better and brighter, and are never discouraged. By the way, did any of you ever hear of a full-blooded negro committing suicide? Perhaps this very characteristic specially fits them to endure *service* better than any other race. In any case, we ought to honor them for this very trait.

Well, among the crowd that were awaiting (they knew not what) was a young colored woman—in fact, a girl; and, to tell the truth, she was remarkable for her look of refinement, gentility, and attractive appearance. She stood alone; and the sadness and terrible sorrow that seemed to weigh her down showed itself in her otherwise bright and beautiful face in a way that attracted attention generally. A Christian man of culture and refinement was looking upon the scene. He was probably a stranger, not only to that locality, but evidently to such scenes, and was touched by the sad countenance of the young girl. He ventured to make some inquiry. One of the colored people explained:

"Oh! this is the first time she has been sold. She is not used to it. She was brought up on a plantation where they were very kind and good to her. She can read and write. She never expected to be sold; but her master died, and they got in debt, and finally the property had to be all closed out."

The humanitarian, for such indeed he was, looked again and again at the young girl, and finally inquired the price. It was very high. Others had their eye on her already. I need not go back and call up these sad memories in the past history of our country; I may only hint at what her feelings must have been when she contemplated that, before the sun went down, she would have to be sold to *somebody*. It did not matter who the man was, or what his morals, or for what *purpose* he wanted her. If he could raise the money she would be his, body and soul—or, at least, *he* would so regard it.

The good gentleman debated quite a time, but finally went up and paid the price, unusual and excessive though it was. Then he went straight to the proper authorities and procured the necessary emancipation papers. When they were finished in due form he simply presented them to her, made his bow, and started to walk away. The thing was so sudden and unexpected she could not comprehend it at all. She started to follow him for an explanation. One of her fellow-slaves, who could also read, explained to her what it was. Said he:

"Why, you are *free*, don't you see? Here are the papers. You are not obliged to follow that man, even if he did 'pay the price.' You are *emancipated*. Here are the papers. You are not obliged to follow him or *anybody*. From this time forward you are a *free woman*. You can go *where* you please and do *as* you please."

"But did this man pay the price? Did *he* make me free? Then I will follow him to the last day of my life. I will serve him with the last *drop of blood* that courses in my veins. My whole *life* henceforth shall be to minister unto him and his, if he will *accept* such service in token of my gratitude for this great and *unspeakable* gift of *freedom* and *emancipation* from that which might have been *worse* than death."

Some time afterward somebody visited this man's home. A bright presence pervaded it all. There was a cheerful and willing step, a *joyous* service that was so unusual, that the visitor asked her how she could always be so bright and good-natured and light-hearted, even though things were discouraging at times.

"How is it, my young friend, that you, a *servant*, can be the brightest, happiest, and most joyous one of the whole household?

She replied:

"O my dear sir! you are mistaken. I *am* a servant, but I am not a slave. He whom I serve, once *bought* me 'with a price.' He *paid* the price, and then he made me free. '*All* to him I owe.' Do you think I can ever forget that kind act from this good man? What a poor recompense it would be if I should ever even *once* in my *life* forget this deliverance—this *emancipation*—so far forget as to show either by look, word, or action, the least *trace* of ingratitude! What would *you* think of me if I should forget this, or if I should forget to be bright, happy, and joyous and grateful, while it is my privilege to serve him, and to feel that I am of some use in his household and in ministering to those I love? I love them, and it is a joy and privilege to serve them because *he* loves them."

Dear reader, I think you see the point I am trying to make, even before I make the application. I do not know how many of you, but I am sure a great number of my readers can say in their hearts as did the poor slave-girl, "*He* paid the price, and made me *free*. I was in the bondage of sin. I was a slave to evil appetites or evil passions. I was helpless, and was undone and ruined. I had *nothing* with which to redeem myself. No friend was willing, even if he could have done so, to pay the price and set me free."

Jesus paid it *all*;
All to him I owe.

Now, then, dear friends, this being true, can we not, as consistently as did the poor slave-girl, say, "I will spend my life in serving him"? God have mercy on me if *I* ever forget this great act of his. He not only paid the price, but he died; he shed his precious blood that *I* might go free.

The above little incident that I have told in my own language, with perhaps some additional thoughts of my own, was given last evening in an address by Dr. Schauffler, whose name has become prominent as the leader of the Bohemian church work in Cleveland. As I listened it brought back to me, oh so vividly! the time when *I* stood a slave—yes, a slave to *sin*—when I stood awaiting the *next* act of my cruel masters. The older readers of GLEANINGS have heard the story; and some of the newer ones

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have wondered why I have kept on month after month and year after *year*, with that same old, *old* story of Jesus and his love. It occurred to me this morning that I could answer all such by the little plaintive illustration I have just given you. The deliverance came in one day—yes, almost in a moment of time. I have *not* been a *cheerful, joyous* servant of his *all* the while during the years that have passed; but God knows I have never been *disloyal* to him for even one moment since that time. Those who have known me long enough will remember the sudden change and the sudden turning-about. My whole heart and *soul* were turned about. I commenced to work for somebody *else* on that very day. And let me say again, that not for one instant in the twenty years and more that have passed since then have I ever *regretted* the new service. I have never yet, sleeping or waking, once wanted to go back and serve my old masters. Again and again in my dreams have I found myself groaning under the old burden, and fettered with the old harness. But, oh what was the rejoicing when I awoke and found it *only* a dream! Sometimes in these dreams I have said, "Lord, save me or I perish." And again and again of late has the answer come, even while I slept. On awaking it has been a most pleasant thought to review, that Jesus answers prayers—prayers uttered in our sleep, and he sends *deliverance*, even in our sleep.

Once in the delirium of a fever one of the emissaries of the evil one persuaded me that I had been "cursing God" on account of the pain and distress. But even in the delirium I rose up with such an emphatic contradiction that an angel of peace spread his protecting wings about me, and whispered in gentle and loving accents, "No, no, child. Not once since thou didst start to serve the Lord has there ever been a disloyal or complaining word."

You may say the above was only the result of a fevered imagination. But, dear friend, feverish or not, it has been a comfort to me, for I know it is *true*. Satan has tried hard. He has at different times sifted me as wheat; but I have never once—no, not even for the briefest instant—been persuaded to let go my hold on that strong arm—that arm that "paid the price" and set me *free*. And, oh what a joyous and loving service has been running all through these years since then! Again and again has come the comforting thought that I am not working for self, but for him who made me free—who not only delivered me then, but ended all *controversy* in regard to whose I am or to whom I belong, by paying the price in full. And then my emancipation papers are so made out that nobody can dispute them—not even my worst enemies—not even *Satan himself*, thank God. The prince of darkness himself has never once suggested there was a fault or fraud in the *papers*. He has tried several times to tell me that I am hampered, and a prisoner still. Yes, I am hampered a little sometimes, but I am not a prisoner. I belong to him who paid the price. But I *want to* belong to him, *soul* and *body*, for *evermore*. There is no joy I have ever found like that I have experienced in his service, and in serving those whom *he* loves. Once in a while I get, oh such precious words of commendation and approval! I get such wonderful rewards. Why, sometimes when I think I have been having a hard time, after it is over—yes, may be after weeks or months have passed, come the cheering words, "Verily, I say unto you, inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

In the little incident I have told you, two things stand out prominently. First, there was a good man—a *Christian* man; and on the other hand there was a good and grateful servant. It is not every one who would have realized and *recognized* the great deed that had been performed. I fear we who are advanced Christians are sometimes guilty of the sin of ingratitude. We forget the *magnitude* of the gift; we forget that we have been *redeemed*, and transformed from death unto *life*. We slip back, and become ungrateful. May God help us.

May I venture just one more thought before closing? In the old life of bondage and slavery we are powerless to do good. We are of no use in the world. In fact, as long as we are slaves of self, and live only for selfish purposes, we are very likely to be a curse to humanity instead of a blessing. In the new life, if we are honest and grateful servants, we are helping the whole wide world to be better. We are striving every day to bring in new recruits, away from the bondage of Satan and selfishness out into the light of freedom and a sincere love for the welfare of others. Oh what a need there is that this emancipation work should go on!—that men should be emancipated from greed and self, and taught to love *other* people instead of self, and to love Jesus our captain, our friend, and our emancipator! For some days back the fragments of a hymn have been floating through my mind. I have not yet found the book that contains it; but four lines of the chorus, if I remember right, run something like this:

And then we'll sing around our King,
And crown him blessed Jesus;
For there's no word ear ever heard
So dear, so sweet as Jesus.

A CROP EVERY SIX WEEKS, WINTER AND SUMMER.

What kind of a crop? Why, a crop of lettuce; and a valuable one too, I assure you. When I was in Columbus, in January, I got up early in the morning and went over to the State University. Of course, I gravitated at once toward a large greenhouse, 100 feet long or more. The center bed, perhaps 8 feet wide, contained a crop of Grand Rapids lettuce almost ready to cut, and it was one of the most beautiful sights I think I ever saw. Prof. Hunt seconded my exclamation, that there was hardly a plant in the hands of the florist that made a more striking and beautiful display than a full crop of Grand Rapids lettuce when it is just in its prime. They are working exactly on the plan I have given you in some of our back numbers. The seed is sown in the flats shown on page 76, and they are transplanted once into the flats before going into large beds, a sufficient number of plants being kept constantly on hand to fill up the large bed just as soon as a cutting is made. In this way they average a crop from the bed once every six weeks. I can not give you the figures just now; but at this date, March 10, we are sold out on lettuce, and are paying a neighboring gardener 15 cts. per lb. for what we sell. It would be a poor crop indeed that did not average half a pound to the plant, and the plants stand 7 inches apart all over the bed. Of course, you have got to attend to things, and know your business, to harvest a crop every six weeks; but any one who

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is really anxious, and has average skill, can learn the trade if he sticks to it.

After I was made happy by seeing how successfully they managed the lettuce-greenhouse, Prof. Hunt took us over to the creamery—I guess that is what they call it—and showed us how they teach Ohio boys to make butter by the use of all modern inventions and appliances. Every thing was as neat and tidy, and bright and clean, as the appliances in the office of a city merchant; and the students were using all the modern inventions in the line of electricity, chemistry, etc., taking the subject in a scientific way, from the proper caring for and feeding the cow, until the gilt-edged butter, cream, or cheese, is ready for a class of consumers who are ready and willing to pay for the finest food product that skill and science can bring out. I hope our experiment colleges will teach the boys, above all things, to be *honest*, and to stand out against fraud, trickery, and deceit *wherever* found.

THE EARLIEST POTATO KNOWN.

On page 153, Feb. 15, A. G. Aldridge says the Bliss Triumph matures with the Early Ohio. From the number of protests we have received in regard to this statement, we feel sure that friend A.'s experience does not agree with that of others; for everywhere else the Bliss Triumph is placed at the head of extra-early potatoes. You will remember our Ohio Experiment Station says, on page 151, Feb. 15, that the Bliss Triumph is identical with Salser's Earliest. It seems to me a little unfortunate that this same potato should be sold under so many different names. It is the potato used largely in the South for second-crop seed. And, by the way, the Georgia Experiment Station Bulletin No. 29 is one of the most valuable bulletins ever put out, in my opinion. It is devoted entirely to Irish potatoes, illustrated all the way through with half-tones of all the prominent new potatoes. It is quite a large-sized bulletin, and the demand for it has been so great they have been obliged to make a reprint, and charge 6 cts. in stamps to applicants outside of the State of Georgia. Address R. J. Redding, Experiment, Ga.

Now, the Bliss Triumph has two or more names. The new White Bliss, which Arthur L. Swinson brings to our notice on page 122, Feb. 1, is a sport of the Bliss Triumph, and is the same thing, only being white instead of red. It is known and advertised under three different names — White Bliss Triumph, Wood's Early, and Pride of the South. We have decided, you will notice, on calling it White Bliss Triumph; and the seed we furnish is second-crop. If you don't know about this second-crop business, the bulletin mentioned above will post you. It is certainly an important item in potato-growing. The Georgia Potato Bulletin says of this White Bliss Triumph, "Comparatively new, but unquestionably the earliest of all." Now, please bear in mind, dear friends, that this experiment station made a test of 240 of the principal varieties of potatoes now known throughout the world.* Their testimony being entirely unbiassed, is, without question, almost beyond price in value. It should be remembered, however, that potatoes exactly suited for the climate of Georgia are not always the best ones here in the North.

*Not only is this potato pronounced the earliest of all, but it gave a yield of 220 bushels per acre. The largest yield per acre was Early Pride, 307 bushels. This stands No. 1. In order of yield the Pride of the South is 91, and Early Ohio stands No. 218 in the order of yield, at 137 bushels per acre.

THE BREED WEEDERS.

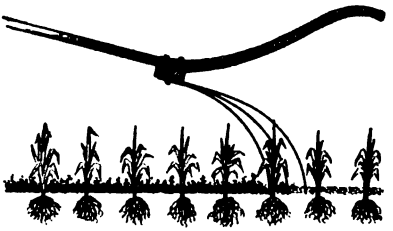
So many inquiries have come in in regard to these tools, I have thought best to tell our readers what I know about them. We have in our possession one of the first got out. Of course, it is an imperfect tool compared with the one we figure below. The first season I received it we grew a heavy crop of potatoes without bringing a hoe into the field at all. We first worked them with the Thomas smoothing-harrow, and afterward with the Breed weeder, keeping it going among them until the plants were nearly a foot high. After going through them, a good many people said the potatoes were ruined—they would never do any thing in the world where they were disturbed and knocked down after that fashion. But the next morning, however, the patch would look pretty fair, and in three or four days they would get up so that one would hardly know any thing had "happened." The next season the ground was so wet we absolutely could not get into it with the weeder on our early crops. By the time it was dry enough, the weeds were so large the machine slipped around them, and treated them like plants. We had to use the hoe. The cut below will make the machine plain.

ONE-HORSE WALKING WEEDER AND CULTIVATOR; 8 FEET LONG; PRICE $14.00.

The secret of success with all these machines is in doing every thing at just the right time. As soon as your potatoes are planted, commence running the smoothing-harrow or weeder. Whenever it rains, as soon as the ground is just right for pulverizing, go over it with the weeder, stir the soil, fine up the lumps. If you have had experience in the business, you know that most soils, especially clay soils, must be just dry *enough*, and not *too* dry, to pulverize to advantage. There comes a time after every summer shower when the ground is *just right;* in fact, the soil fairly seems to invite being stirred and pulverized. Sometimes there are only a very few hours in the day when the circumstances are just *exactly* right. When this time comes, the gardener should be able to put every thing aside and thoroughly stir not only every acre but every inch of his ground. Let us now go back to the picture.

There is a little crust between the plants—may be some little weeds just visible if you get down on your hands and knees and use your spectacles to find them. The weeder will stir these weeds up so that, if they are not killed outright, they have got a terrible setback; but the corn or potatoes that have got depth of root will spring over to one side or the other, and let the vibrating steel teeth get through. The next cut shows how it works. The weeds ought to be killed before they get to be visible at all. But perhaps we can not work with such thoroughness as to do this. Never mind. If you get them out with their roots loose from the dirt they will die unless there is another rain. In fact, if another rain comes you must

give them another stirring at just the right point. If another rain does not come, you should stir the ground anyway by the time the weeds begin to recover enough to start to grow again. I have sometimes thought that the



Cross-section cut showing the way in which the vibrating teeth tear to pieces the small weeds while they slip around the larger well-rooted plants.

man who works with a Breed weeder ought to have only so much land to go over, and he should have nothing else in the world to hinder the work being done, not only on the very day but almost the very hour it *should* be done; then he has the upper hand of things, and success is sure.

There has been a good deal of talk about a hand-weeder; and our friend Boardman, whom you all know so well, has a home-made one that he constructed himself, that gives excellent satisfaction. The manufacturers also make a hand machine and hoe combined; price 60 cts. I believe, however, they do not give it a very high recommend. A hand-weeder, with wheels, to work like a hand-cultivator, is made to work among onions This, I believe, is a decided success; price $10. It is operated by one man. I wrote to the manufacturers that my impression was that the Breed weeder was not very practical unless the ground was very clean, free from stones, stumps, sticks, rubbish, etc. Here is what they say about it:

You need not put too much stress upon the matter of freeing the ground from all trash and rubbish, because they are so easily raised that, if some of the trash collects on the fingers, it is easily dropped; and yet it would be well to have the ground perfectly free. We would not recommend its use on ground where cornstalks had been fed down and the butts plowed under in a shiftless manner. If the plowing has been well done, and the weeder used once over the ground to rake this up, there would be but very little trouble.

They also write in regard to using it on clay soils:

While you are writing up the weeders, we wish you would call especial attention to their great value in a clayey soil, as with them the formation of a crust is entirely prevented. You can start them sooner after a rain than you can any other kind of cultivator; and their work is so rapid that the field is gone over before the crust has a chance to form. Then, again, in times of drouth the dust blanket, or mulch, which they form on the surface of the ground, almost entirely prevents the evaporation of the water in the ground below. It is really *held* there to be appropriated by the plant-roots.

Below is something in regard to using the machine among currant and gooseberry cuttings:

We inclose a slip showing what Mr. Cotta, one of the leading farmers of Illinois, says of it. He wrote an article which appeared in a recent number of the Orange Judd *Farmer*, giving a full account of his work with the weeder. We knew nothing of this until we saw in another paper a long extract from this article. Mr. Cotta also sent us a local paper which published his essay on surface cultivation delivered at a recent Illinois State institute. This had a half-tone cut of a gooseberry-bush—roots and all—which was grown from a cutting last season. It is a wonderful exhibit of the benefit arising from a dust mulch, when we consider how very dry it was there last year.

Below is the clipping referred to:

The Zephaniah Breed weeder is the greatest tool for conserving moisture I ever saw. On examining the soil in a very dry time in the late summer I found that soil gathered two inches below the surface was moist enough to ball in the hands, while the top ¾ of an inch was as dry as could be. The ground two rods away, that had been well cultivated, was still dry. I kept one acre of strawberries in hills, and began using the weeder the day I set them. The plants made a remarkable growth, although we had very little rain after setting. I used it on one acre of currant and gooseberry cuttings set the previous fall, beginning when the ground was dry enough to work, and continued it on the currants until fall, and on the gooseberries till the tops spread six or eight inches without removing any teeth. It has been very dry here, but the gooseberries have made a marvelous growth, and now average larger than two-year-old bushes.

Freeport, Ill. H. R. COTTA.

Our readers will remember that I visited Matthew Crawford, of Cuyahoga Falls, O., last season, just after his boys had been running a weeder through a new plantation of strawberries recently set. The ground was fined up, and fixed as nice as or nicer than a gang of men could do it with hand-rakes; and yet they did an acre or two in a part of one forenoon, and not a strawberry-plant, so far as I could see, was thrown out.

To sum up, if you get your ground in the right sort of trim, and you are one of that sort of men who drive their work without letting the work drive them, you will probably make a success of the Breed weeder—that is, if you put your skill and brains right into the work. If you are trusting to the average "hired man," and you are away somewhere else, I do not believe you want a weeder. In fact, I don't believe you want a *garden* either.

For pamphlet illustrating the weeders, address the Z. Breed Weeder Co., 26 Merchants' Row, Boston, Mass.

THE WHITE GRUB; HOW TO DESTROY THEM.

In December, while plowing I put a dozen white grubs into a can partly filled with dirt, and set them in the fence-corner to see what effect freezing and thawing would have. About the middle of January I took them out and found that they were entirely destroyed, legs and heads being about all there was left. Therefore, if you want to clear a field of them plow it when it is so cold they can't burrow down again. W. R. GRANNIS.

Lodi, O., Feb. 5.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

ALSIKE CLOVER—REDUCTION IN THE PRICE OF SEED.

Until further notice we will furnish alsike, medium clover, mammoth or peavine, and alfalfa, each and all at the uniform price of $5.50 per bushel; ½ bushel, $3.00; peck, $1.60. The above prices include sack to ship in. Prices by mail, postpaid, 1 lb., 25 cts.; 1 lb., by express or freight, with other goods, 15 cts.

SEEDS BY MAIL; REMEMBERING THE POSTAGE.

When ordering seeds by mail, be sure to remember to include 10c per lb. or 1c per oz. additional for postage. Some of you may ask why we do not make our prices high enough to include postage. I answer, because so many of the friends have their seeds sent by express or freight with other goods. It would be unfair to take postage in this case where no postage was needed. You may say one cent on an ounce is but a very small matter; but if you will compare our prices with those of other seedsmen, especially our *ounce* prices, you will see we are away down below most of them. We have plenty of help here at the Home of the Honey-bees, and our boys and girls are very glad to work cheap rather than not work at all; therefore we can at-

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tend to small orders with perhaps less expense than if we had to hire a big strong man to do the work himself. But where we give these very low prices—prices, indeed, so close there is no margin left to throw in a few cents for postage, in order that we may *continue* to give you these close prices will you not be careful to include the few cents needed to pay for postage and packing?

SWEET CLOVER.

Once more there is being so much sweet clover ordered that it not only surprises me but it arouses curiosity. Another thing, the orders are coming from those who ordered large quantities last year. Now, friends, will you please tell us what you do with it—how you sow it, how you prepare the ground, how much seed per acre, and any thing else of interest? Do you sow it for honey alone, or do you find it valuable for stock? Please answer, a great lot of you, that we may have your replies published.

SEED SWEET POTATOES.

As there seems to be much inquiry in regard to seed sweet potatoes for bedding, and as it will soon be time to put them out, we offer them as follows: By mail, 1 lb., Yellow Jersey, 20 cts.; 3 lbs., 50 cts.; by express or freight, ½ peck, 50 cts.; peck, 90 cts.; ½ bushel, $1.25. The vineless yam or bunch sweet potato, 1 lb., by mail, 25 cts.; 3 lbs., 60 cts.; ½ peck, by freight or express, 60 cts.; peck, $1.00; ½ bushel, $1.50. For bushel and barrel lots, see advertisement of L. H. Mahan, Terre Haute, Ind., in this issue.

GOVERNMENT BULLETINS OF VALUE TO THE FARMER AND GARDENER.

First we have Bulletin No. 35, entitled "Potato Culture," from Washington, D. C. This covers the ground completely—that is, as completely as possible in a pamphlet of about twenty pages. The concluding summary is exceedingly valuable. Of course, its teachings are not directly all in line with those of our potato book by T. B. Terry. But the fact is, the average farmer will not follow T. B. Terry; but this bulletin gives sound sensible advice in regard to the plan he is already working on, and probably will work on. In fact, it makes it an easy step before taking Terry's system.

The other bulletin that pleases me is from the University of Minnesota, and is entitled "Insects Injurious in 1895." It mentions all the troublesome insects, cut-worms, etc., that have bothered us the past season; and its suggestions for combatting these pests are about as sensible and plain as any thing that has ever appeared in print, and I have reviewed almost all the books and pamphlets on this subject. Address Agricultural Experiment Station, St. Anthony Park, Ramsey Co., Minn. It is mailed free to all residents of Minnesota, and they will probably tell you under what conditions people from other States can get it. It is illustrated with numerous wood-cuts, and in the back part are some most beautiful half-tone pictures of the plants, insects, and machinery.

J. S. SMITH, OF PADELFORD'S, N. Y.

This man, whose advertisement has already appeared in GLEANINGS, offers an "early thoroughbred" potato, which is all right—that is, there is nothing so *very* wrong in naming his potato after Wm. Henry Maule's Early Thoroughbred. (In his circular he spells Mr. Maule's name *Maule.*) But when he uses T. B. Terry's name and mine to puff it, without the knowledge or consent of either of us, it is a rather serious matter. Mr. Smith says he raised these potatoes last year, and that they gave "a yield rating over 300 bushels per acre." The potato that he calls "thoroughbred," and offers for a third the price of the genuine article, may be a good potato. I hope it is; but neither Terry nor I ever knew or heard of it. I have written to him repeatedly, and have protested in regard to the course he has taken; but as I can get from him only evasive and ambiguous answers, I finally told him I should publish him unless he stopped using my name. But he still keeps sending out these circulars. Whatsoever a man soweth, that shall he also reap; and I think it will be well to let these parties reap the consequences of this manner of doing business. We are pleased to see the recent vigorous steps that are being taken to punish frauds in the food we eat. Shall not similar steps be taken to punish frauds in the seeds we buy to *plant?*

BLUE VITRIOL AND PARIS GREEN.

As it is now time to begin to think about spraying our trees, it occurred to me our friends might like to know what they ought to pay for the above articles, good quality. Blue vitriol (sulphate of copper) is worth by the barrel about 4 cts. per lb., wholesale. With the steady demand there is for it, your druggist should not charge you more than 7 or 8 cts. for it by the single pound; and you ought to get 4 lbs. for about an even 25 cts. A good quality of Paris green is worth 15½ cts. at wholesale. It should retail at from 20 to 25 cts. for a single pound, or 5 lbs. for $1 00. If your druggist will not put it up for you at the above figures we shall be glad to do so. For larger lots than 4 or 5 lbs. we will make a special low rate.

COW PEAS (SOUTHERN STOCK PEA OF THE SOUTH, ALSO CALLED HONEY PEA).

These have been in our list of honey-plants for many years past. With us they make a tremendous amount of foliage and blossoms, but seldom ripen the peas fit for seed. There has been so much interest manifested in them of late for fodder, and for plowing under, that we have just obtained a special low rate. Postpaid by mail, 15c per lb.; by freight or express, peck, 40c; ½ bushel, 75c; bushel, $1.25. The above is for the varieties called Wonderful and Whippoorwill. We can furnish the clay and mixed peas in bushel lots at $1.00 per bushel. In quantities of one bushel or more, they will be shipped from Goldsboro, N. C Or if you prefer you can order direct from T. B. Parker, same address, whose advertisement will be found in this issue.

ELECTRO-MEDICAL FRAUDS.

I have not kept still of late in regard to this matter because Electropoise and kindred swindles were killed out, but because I thought it unwise to cumber our journal with more in regard to the matter just now. We may feel encouraged, however, because the greater part of the religious papers have already dropped Electropoise. In fact, I see it now only in the *Golden Rule;* and the advertising manager excuses himself on the ground that the thing is as respectable as *other* "patent medicines." It seems to me the above is rather "heavy" on the patent-medicine people. In the last number of *Electricity* there is something so directly to the point that we copy it below:

> We all remember what shame the management of the Electrical Department of the World's Fair brought upon all true American electricians in permitting the exhibition of electro-medical frauds side by side with legitimate apparatus; how the blush was brought to our cheek when, on invitation by the head of the department, we attended a collation and found among the guests, equally honored with ourselves, the promoters of these same frauds. We remember how pleased we were that Silvanus Thompson had courage enough to openly resent this insult to professional dignity, and how the flush of shame upon the faces of American electricians heightened when the assistant to the chief arose in defense of the "electric belt"
>
> Later, after the Exposition was over, Prof. Elihu Thompson, one of the most honored of America's electricians, and thrice honored because of these words, said in the ENGINEERING MAGAZINE:
>
> "The one discordant note in all this great display of genuine scientific and engineering work was found in the fact that in this same temple of science—in Electricity Building itself—naked imposture, quackery in the form of so-called electrical belts, hair-brushes, insoles, and what not, had obtained a footing, and stalked forth unabashed. No words of condemnation can be too strong to be applied to the parasites who in the guise of healing and benefaction, succeed in extracting perhaps the last money from the sick and suffering for their worthless trumpery."
>
> The ELECTRICAL ENGINEER, in August, 1894, printed a description of an electrical hair-brush, and gave it semi-editorial indorsement; and the ELECTRICAL WORLD, which has done nothing to create public sentiment against impositions of this kind, upon learning that an English judge had sentenced an electric belt manufacturer to FIVE YEARS' PENAL SERVITUDE, said: "What a blessing it would be if we had such courts and laws in this country!"
>
> Will our contemporaries arise and lend a hand in exterminating this vermin? Come, gentlemen, show that you have a little manhood left. Come into the fight, and redeem yourselves—you can not lose advertising by it; you may do good.

I remember feeling so indignant while in Electricity Building that for a time I wanted to turn round and go home in disgust with the World's Fair and every thing else. Well, you will notice by the above that I was not the only one who felt like "blushing for shame" at the sight of these hypocritical devices, standing side by side with real *honest* inventions.

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SEED POTATOES READY TO BE SENT OUT.

On and after this date, March 15, we will ship seed potatoes anywhere at our risk from frost. Of course, if the Weather Bureau notifies us that a cold wave is coming, we shall wait till the cold wave is over. If you have not already our latest list of seed potatoes, we will send you circulars with great pleasure.

FORCING PIE-PLANT WITHOUT THE USE OF GLASS.

The first time you find the ground thawed out and warm, get a lot of loose coarse strawy stable manure. Cover the whole surface 6 inches or a foot thick. Make little openings right over the great buds, and this will keep the ground from freezing, and, to a great extent, keep the frost from the early shoots.

HONEY.

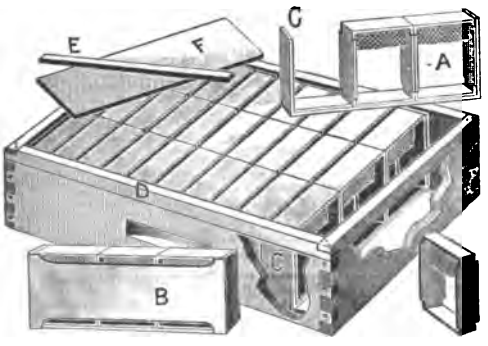
We have little comb honey left in stock, having sold off recently all but a few cases. This we offer to any in need, at 14c per lb. for fancy white; 9-case lot at 13c. We still have a good supply of extracted California and alfalfa at 7c per lb. in 60-lb. cans, 2 in a case; and willow herb, very white and nice, in 60-lb. cans at 7½c. We have a 200-lb. keg of the latter which we will sell at 7c, also some in lard-cans and pails at same price. Orders and inquiries solicited.

SPECIAL FOUNDATION AT A SPECIAL PRICE.

Three years ago we furnished a wealthy party in the vicinity of Philadelphia several hundred pounds of medium brood foundation, L. size. His plans changed, and most of the foundation still remains in the boxes as originally shipped. We have just bought it back; and before making it over into new-process foundation, we give any one an opportunity to buy it as it is at a special price. There is from 300 to 400 lbs., put up 25 lbs. in a box. We offer it, while it lasts, at $9.00 a box; $35 for 100 lbs. Those who are looking for something below regular prices will find in this a bargain.

MAPLE SYRUP AND SUGAR.

We now have a good supply of new maple syrup and sugar ready to supply on short notice at much lower prices than those named a month ago. What we have bought so far is of the very finest quality, being produced early. We offer the syrup in gallon cans at 90 cents each; 10 gallons at 85 cts. a gallon. We should be pleased to hear from those who can use larger quantities. Maple sugar has not been offered very freely yet, and on this we can not make any better prices than 10 cts. per lb. for best grade; 9 cts. for second grade; 8 cts. for third grade; ½ ct. less in 50-lb. lots; 1 ct. less in barrel lots.



OPEN-CORNERED PRIZE SECTIONS ADAPTED TO THE 8-FRAME DOVETAILED SUPER.

As promised in last issue, we now show you in the above cut a method of using on the regular 8-frame hive the tall open-cornered sections described in a recent issue under Trade Notes. All that is needed is tin strips for the side of the super, in place of those on the end to support the short section-holders. These have ends $\frac{3}{16}$ thick, 5¼ long, dovetailed into the straight bottom, ¼ thick, and same width as narrow part of section. Short separators, slotted full length, top and bottom, are used; or, if fastened, straight separators 4¼ could be used with equal or better advantage. To give sufficient depth to the super, a rim must be added. This rim should be ⅜ inch deep, if you preserve a bee-space above the sections; or if a sheet of wax paper is placed over the sections under the cover, a half-inch rim will suffice. When supers are ordered especially for this section they will be made 5½ inches deep. Some may want to try this section in supers which they already have; hence we provide for a rim. Some have written to know whether they would have to pay a royalty for using any of the hives and fixtures covered by Danzenbaker's patent. After buying the hives or fixtures at the prices quoted, you are free to use them, but not to make more like them, any more than you are free to make any article that is patented. You will observe that, by an extra depth of ⅜ inch in the super, 30 of these tall sections can be placed in any 8-frame super instead of 24 of the regular 4¼ size—an increase of 25 per cent.

We will furnish the No. 1 Dov. 8-frame hive with 5½-inch super, and the above rig, at 10c per hive extra; or we will furnish the 5½-inch super, complete, in flat, with fittings as shown above, at 50c each in lots of 10 or more; without starters, 30c each.

It is quite a little extra trouble and expense to make the open-cornered sections, as we have not automatic machinery adapted to that style as we have the regular style. This makes it necessary to charge 25c per 1000 more for sections of any size made open-cornered, over the price of the regular style. We are prepared to furnish the 4¼ in various widths in this open-cornered style.

REMOVAL OF CHICAGO BRANCH.

In order to get more convenient and commodious quarters in which to transact business at our Chicago branch and to make it more convenient for our manager there, by having his own business on the same floor, we have found it necessary to move from 56 Fifth Ave. to 118 Michigan Street, third floor, which is within three blocks of the Northwestern passenger depot. We now have a room 38x70 feet in which will be found very soon a fairly complete stock of our goods.

A KIND WORD, AND SOMETHING MORE SUBSTANTIAL THAN "WORDS" ALONG WITH IT.

Dear Mr. Root:—I saw yesterday, for the first time, your too kindly notice of me in January GLEANINGS, which was showed me by a friend and subscriber in the adjoining township of Castlebar. If I was given the opportunity and privilege of being in any small degree helpful to you in furthering the great work in which you are engaged, the pleasure and benefit were by no means all yours, for your wonderful success has been a constant pleasure to me, and the rich return of kindly feeling which you have ever shown me since our first meeting has been so extravagant as to cause me shame that I do not more truly deserve so many of your very kindly words. It will be my aim, however, to more fully merit in the future those of them that I can reach. A part of them are unattainable, for I am, *oh so far removed* from being an "able teacher"! I ever desire to keep my place in the ranks of the "learners," for that is the only place for which I am fitted.

Since writing you, encouraging signs of the fulfillment in this case of that promise, "Surely the wrath of man shall praise thee; the remainder of wrath shalt thou restrain," have appeared. I refer particularly to the call which it is proposed to make for a representative meeting to be most appropriately held in the City of Brotherly Love (Philadelphia) on Washington's birthday, and which, in the terms of the notice, "is in furtherance of the plan to preserve lasting peace between the great English-speaking peoples." May God bless the movement!

Your kind words, and the remembrance of the kindly acts of yourself and readers toward dear Helen Keller's protegé, Tommy Stringer, have to-day put it in my mind to make another and far more urgent appeal for help to you and our brother bee-keepers and their friends of America. It is for

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our poor, persecuted, suffering, and starving Armenian brethren. How little we in our comfortable homes, safely sheltered from winter's cold, with plenty to eat, drink, and to wear, and enjoying all the numberless blessings of peace in a Christian land, can realize the awful outrages inflicted upon their hapless victims by the "unspeakable Turk"! Think of it for a moment. Rev. R. Chambers, one of our missionaries stationed at Bardezag, Ismidt, which is very near the scene of these terrible outrages, writes: "Fifty thousand unresisting men, women, and children have been butchered amid the most frightful barbarities; whole districts have been laid waste by fire and sword; the trade and industry of six provinces have been destroyed; mission buildings, colleges, schools, chapel, and missionary residences have been burned, with all their contents; thousands and thousands of people, largely widowed women and fatherless children, are without the shelter of a roof; 500,000 Christians are in danger of death from hunger and cold, hundreds of them dying every day. God only knows the tears and heartaches of this long, long strain, for this has been going on for months. . . . . Everywhere the religion of Islam is offered as the alternative of the sword. Many poor people have accepted Islam, but God's noble army of martyrs has received accessions by thousands during these months. The people here, with all trade stopped, and most of the working people thrown out of employment, with the stress of poverty and the added stress of winter upon them, are responding with marvelous liberality to the appeal of their suffering brethren. Some have sold flour from their scanty stores, others have taken clothing from their backs (and the very best they had); others have put themselves on very short allowance of food, while still others, themselves objects of charity, have, with flowing tears, begged the privilege of some task to perform by which they might gain a little sum to send. I commenced a movement here, and have just sent off twenty bales of clothing and $500 in cash."

Surely such a terrible spectacle will have our deepest pity, and enlist our warmest sympathy. It is stated by competent authority, that "ten cents a week will keep a human being in Armenia from starving." It is not often that a chance comes to any of us to do so much for so little.

What do you say, brother bee-keepers and friends of GLEANINGS? Shall we not claim our privilege to have a share in this noble work? and can we not send it as a "GLEANINGS Armenian Fund from the Bee-keepers of America"? I have always delighted in the name as well as in the sentiments of GLEANINGS, especially in its plain, practical gleanings of truth in its Home Papers. Shall we not give an added luster to its bright name by sending to it our sheaves, be they big or little, to aid in feeding, clothing, and keeping from freezing our persecuted, starving brethren? I have no desire to interfere with any of the "Armenian Relief Funds" now in existence; may God bless and abundantly prosper them all! but the want and misery and suffering are so awful that there is more than room for every cent that can be raised by all of our organizations.

Did some friend ask, "How will the money reach the Armenians? and are we sure it will be wisely spent"? I am glad to say that the very best facilities possible are in this case available. The faithful, devoted missionaries of the A. B. C. F. M. are scattered all over this terrible region of desolation, and are now acting as angels of mercy; and our "gleanings" can be sent to them first by Mr. Root's check to the A. B. C. F. M. at Boston as often as necessary, and then be included in their remittances of relief money which are sent by them twice a week, and sometimes oftener, by cable to the missionaries in Constantinople for distribution where most needed, so you see that the cost of forwarding and distributing the money is but a trifle, and the facilities for properly distributing the food, etc., could not possibly be better, as the missionaries on the ground will have a personal knowledge of nearly every case, and know whether the applicant is really needy or not.

The Montreal *Witness*, always ready to help in every good work, opened a "*Witness* Armenian Fund" about a month ago, and on Saturday last it amounted to over $4000, all of which has been distributed this way through the A. B. C. F. M.; and as the fuller knowledge of the terrible suffering of the Armenians is each day more and more apparent, this fund is rapidly growing. Let us each do what we can, remembering, especially in this case, that "he gives twice who gives *quickly*."

Danville, P. Q., Feb. 17. GEO. O. GOODHUE.

[I will explain to our readers, that, with the above kindly appeal, comes a check for $10. Although I have given $25 to be sent with the contribution from our church, I take pleasure in adding another $25 to go with the $10 friend Goodhue sends. Now, if any other reader of GLEANINGS would consider it a pleasure to be one of the GLEANINGS Armenian Fund, I am sure both friend Goodhue and myself will be glad to send theirs along with ours, be it much or little. Before the kind letter was received I had a sort of feeling that the GLEANINGS family ought to have a representation in this work. But I put it off, feeling that many of them had been giving heavily; but when the $10 came, you see the thing had started itself. Now, please do not hesitate, any of you, because your contributions may be small. It is not so much the amount as it is the spirit; for you know "the Lord loveth a cheerful giver."

Later, March 12.—We are just informed that the Montreal *Witness* fund has now reached nearly $7000, and that of the New York *Christian Herald*, which was started somewhat earlier, is now five times as much. Over $200,000 has been sent from this continent, and probably a similar sum from Great Britain. What is true of the American contributions (and we presume the same holds good with the Canadians) is, that this fund is mostly raised outside of the cities. The Red Cross committee are using their funds largely in setting the people at work. Everybody agrees that such a course is far better than giving the money outright. As far as possible they purchase raw material, then set these poor, discouraged, outraged people at work; and we are told that the change brought about in these plundered and almost desolate villages by this sort of effort, brought about by the missionaries and the Red Cross people working conjointly, is enough to produce a sight that is sufficient to touch the heart of a hardened criminal. Where before was suffering, starvation, discouragement, and misery, is now a scene of activity, joy, and hope. Send in your contributions, friends, no matter how humble, and we will see how much of a fund the *bee-keepers* of the whole world can raise.]

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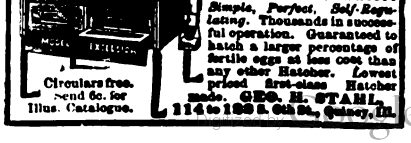

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VOL. XXIV. APRIL 1, 1896. NO. 7.

GLEANINGS IN BEE CULTURE

A JOURNAL · DEVOTED · TO BEES · HONEY · AND HOME · INTERESTS ·

The A. I. ROOT CO.
MEDINA · OHIO ·

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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

Vol. XXIV. APR. 1, 1896. No. 7.

STRAY STRAWS FROM DR. C. C. MILLER.

"IF A. I. ROOT would only get the bee-fever over again it would be the biggest kind of an item."—E. E. Hasty, in *Review*. Correct.

C. W. POST says that in 1892, during buckwheat flow, 525 colonies in his apiary were not overstocked. So reported at Ontario convention.

I KNOW all about some things, but it isn't about bees. [Now look here; you know a lot more about bees than you profess to know. You are too modest.—ED.]

MARCH 16 I looked into the new and commodious quarters of the Chicago branch of the A. I. Root Co., at 118 Michigan St., and found it didn't look so much like a branch as a whole tree.

"WE CONSIDER the drones as important, in the making of a good apiary, as the queens."—Dadant & Son, in *A. B. J.* Yes, no doubt about it; but in actual practice very little attention is paid to it.

IN REPLYING to the questions on p. 233, remember the important thing is to tell what use can be made of sweet clover as a forage-plant. The time for discussing its value as a honey-plant is past.

I'M MUCH OBLIGED to J. E. Hand for his explanation on page 214. I understand the matter perfectly now. He has "perfect control" of his bees by watching their instincts and letting them do as they please.

HARPER'S MAGAZINE has an article by Ninetta Eames, in which she says, "Instances are not uncommon where a single Italian swarm has produced one thousand pounds of extracted honey in one year." O Ninetta! Ninetta!

IN CANADA, by the new law, says *C. B. J.*, "Sugar honey fed to bees, or any other substance such as glucose, is simply not recognized as any thing more than it is, and only that gathered from flowers has a legal standing as honey."

"TEN YEARS AGO I invested in alfalfa seed; and up to the present time I have never seen a bee upon it." So says J. McArthur, of Canada, in *A. B. J.* [His locality is not adapted for secreting honey. It requires a hot dry climate to do its best.—ED.]

HASTY, in *Review*, calls attention to the fact that Baldensperger's figures make the queen average 1748 eggs per day between March 3 and August 3. But remember that was in a colony probably less than 40,000. What would it be in a colony of 75,000, 100,000, or 150,000?

WINTER STORES. W. C. Copeland reports, in *A. B. J.*, that for the forty-five days ending Jan. 11, average consumption of his bees in Tennessee was 1⅞ oz. daily; largest average by any one colony, 2 oz.; smallest, 1 oz. That makes a general average of only about 2¼ lbs. per month.

THOS. EVANS sends me a 10-foot strip of foundation made on a machine he invented three years ago. Don't know how much it's like the Weed process; but what made you keep so quiet about it, friend Evans? [Because he knew long sheets were not a new idea, probably.—ED.]

"AFTER-CELLS," the name proposed by Chas. Norman for worker-cells turned into queen-cells, is seconded by Hasty. He thinks other queen-cells can be called simply "cells" or "queen-cells;" or if emphasis is needed, "normal cells." Guess we can settle on "after-cells," any way.

WHOLE-WHEAT FLOUR. T. F. Bingham says in *Review*, "I go to a roller-mill and ask for 'brake-stock' just before it goes to the 'grater.'" Then he gets all but the coarsest bran, and they have nice gems and raised griddle-cake. *Later.*—Works well at our house too. [And here too.—ED.]

SOME SAY packing does good in winter by keeping the bees warmer. Others say it does harm by keeping out the heat of the sun. J. L. Gandy (*A. B. J.*) compromises the matter by packing the north and west, leaving east and south unprotected. Thus he protects the two coldest sides and lets the sun do its work too. Why isn't that a sensible idea?

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THE ONTARIO B. K. ASS'N received in 1895, for membership fees, $175; affiliation fees of 13 societies, $65; government grant, $650; total, $890. Those Kanucks know just how to do it. [I wish we had for our national association some of the money that is wasted in the government seed business.—ED.]

REFERRING to p. 215, friend Phelps, I have the furniture-nails in use, and also common nails, which I like better. We can't all agree about "best things." But I'm inclined to think that's a good idea of yours to have a space at end of top-bar, and have the spacing done lower down. [The point is a good one.—ED.]

MOUNTAIN-LAUREL honey has the reputation of being poisonous; but "Novice," in *A. B. J.*, doubts whether it is ever poisonous. Forty acres of laurel were within a mile of his bees; he extracted twice while it was in bloom; the honey was all eaten near home, and no one was sick from it. [A writer in our own columns gave expression to the same thought. It must be that it is not always poisonous.—ED.]

"BEE PARALYSIS, dysentery, and spring dwindling are exactly the same family of diseases, only in a little different form. . . If we are not mistaken, these diseases are one and the same thing, and really have no name."—*Southland Queen*. I don't know about their being the same; but surely it sounds queer to call a disease by a name, and then say it has no name. [I should say that the three diseases were very different in character.—ED.]

WHAT DOES AIL the *British Bee Journal?* It recommends fastening foundation in sections with melted wax or a warm flatiron, and says, "Sections are now made with a split top-bar for reception of the foundation." That was true 15 years ago; but I didn't know split top-bars were still in existence, or that any one would now putter with melted wax or warm flatirons. [Split top-bars and grooves in sections—yes, we make lots of them. Bee-keepers won't use all the same appliances.—ED.]

DOOLITTLE, in *A. B. J.*, thinks overproduction is to blame for the fact that, considering difference in labor and product at the present day, honey brings little more than one-third what it did years ago. J. H. Martin thinks there's no use talking about competition so long as people eat less than one pound per capita. He thinks glucose makes the low price. [Knowing what I do, I incline more toward Martin's idea. We must meet this glucose competition by the strong arm of the law. Unless bee-keepers organize and make a good fight, honey will sell lower yet, I fear.—ED.]

SECRETARY MORTON, against his better judgment, is forced by Congress to send out 10,125,000 packets of garden seeds and 1,000,000 packets of flower seeds. They'll probably go largely to people who don't care for them, and will throw them into the waste-basket, and to those who can buy what they want, the poorer class who need them getting little chance. Wonder if it will be the same way if the government prints bee-books. [There is hardly an agricultural paper that has not warmly supported Secretary Morton; and it is a shame that he should have been sat down on, for he surely was in the right. The government seed business has been an outrage, and a senseless drain on Uncle Sam's pocket; and every right-thinking Congressman should have supported the Secretary. But I presume considerable pressure was brought to bear upon our Senators and members of the House because certain friends and patrons were after the salaries and clerk hire that the seed business has been giving. I for one wish the patronage business could be taken out of the hands of every law-maker in the country; and that every one desiring a government position should get it only under civil-service rules. However, the Secretary's protest was not entirely in vain. If the government *must* furnish seeds free, it is better to buy them under the laws of competition than to go into the business of putting them up. Government bulletins on the other hand are designed to inform the people at once of the progress of the work done, and have their legitimate and proper use. They could hardly, I think, be classed in the same category as the government seed business.—ED.]

There is a rumor floating around California that bee-keepers somewhere in the world—perhaps Patagonia—are making a very good yield of comb honey right in the face of a severe drouth. They do it by feeding sugar. Now, I really do not believe it; and I hope our Patagonian friends can contradict such statements.

I am not sure but our exchange will need the services of an expert taster when we get to grading honey. Few men are able to distinguish the different flavors of honey after sampling a score of cans. It might be well to educate a class of tasters just as they do in the tea-trade. Come to think of it, it being merely a matter of tongue, our ladies—but, there; I won't say another word.

On page 77, March *Progressive*, "Little Bee" puts California down as one of the States that is afflicted now and then with a bad failure in the honey yield. While that is true in relation to this southern end of the State, it is not true about the central and eastern portion. In those localities the yield is from alfalfa, and every year is a honey-producer. And, by the way, the

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March number of the *Progressive* is a readable number, keeping in line with its heading, "Progressive."

The first week in March witnessed copious rains throughout the State of California. The value of such a wetting can be estimated only by hundreds of thousands of dollars, aside from the honey interests. All kinds of grain crops are saved from failure. With the rain came snow. So rare is this in our valley that people went wild over it. The hour or so that it covered the ground was spent mostly in hurling snowballs.

At a recent meeting of bee-keepers in Perris, Cal., commission men were given their share of criticism, and a lady bee-keeper was particularly severe upon a well-known firm in Chicago. This lady had consigned honey to the above firm, and the returns were not up to expectations, and she was angry. Said she, "I'd like to give them a dose of bees. If that wouldn't make them disgorge, it would at least make them mighty uncomfortable." As to the right or wrong of the transaction, I know nothing.

[That Chicago firms' quotations do not appear, if I am correct, in any of the bee journals. A commission firm must not only be honest, but must be reasonably fair to get and hold space in our honey columns.—ED.]

THE HONEY EXCHANGE.

Is there any law, Mr. Ed-editor, against one man's stealing the ideas of another, before the other man gets them formulated and spread before the public? If there is not, there certainly should be, and a very severe one at that. "The man that steals my purse steals trash," generally; "but he that filches from me" my intellectual triumphs "makes me poor indeed." Now, there is that Somnambulist, in *Progressive*, who pretends to be always asleep; but I don't believe he is asleep at all. He just puts that on, so that he will be considered irresponsible for his actions. But I hold him responsible all the same, for the mad energy with which he supplanted me as follows:

California certainly possesses a climate charmingly favorable to the cultivation of conceit, and it takes lots of that to face fraud. It seems almost too bad that future history will have to credit her bee-keepers with the honor of having taken the initiatory steps in this movement. And shall it be chronicled that other sections of the country stood idly by during this contest, and, when victory had been won, were not only willing but anxious to share the accruing benefits? For, truly, whatever is beneficial to them is proportionately so to us. If co-operation be good for them, why not for us? Let us at least co-operate with them to the extent of keeping out of the large cities with our small crops, thereby building up our home markets, and at the same time giving them full sweep of the commission houses, and the grand opportunity of educating the masses as regards the *real* value of pure honey. 'Tis said, "It's a poor rule that will not work both ways." We, in protecting our home markets, will in so far protect our California friends. They, in protecting themselves, will protect us.

Yes, Somnambulist, of course these ideas are all mine. You took them in your sleep, and were not responsible. Yes, California sets the ball rolling. But this movement will not and can not be confined to this coast. Of course, *we* are the prime movers in projecting and perfecting the scheme, and deserve all the honors that future historians will pile around our illustrious names. But why should the rest of the country stand "idly by" till victory is won? Why not join us and help to win the victory? It is as sure as fate or the tax-gatherer, that this will become a national movement. It may go on for a time as the "California Honey Exchange," but changes will creep in. The bee-keepers of the East will see the folly of shipping to a commission merchant who may sell comb honey at 16 cents, and make returns at 12 or even less, when, by paying a dollar, he can have his honey honestly handled at the actual cost of selling it. The bee-keepers of the East *will* come in and join us on the way to victory. It is our interest that you should do so, as well as yours. While you keep shipping your honey to commission men, *our* exchange can't get or hold control of the market; but once let the Exchange include in its membership a vast majority of the bee-keepers in the Union, and it would control the price of honey. The little that would be produced by outsiders and non-professionals would count for nothing. The Exchange would practically have control of all the honey in the United States. A very small per cent would pay all its expenses, because it would do a very heavy business. For instance, the Chicago house would do all the honey business that 10 or 15 great houses do now. Where one of these houses would sell from one to two thousand dollars' worth of honey per month, the Exchange, having practically all the honey in the market, would sell from ten to twenty and even thirty thousand dollars' worth per month. I am talking of such cities as Chicago and New York. The general manager must be an "honest, pushing, wide-awake, capable man." He must be like the train-dispatcher of a great railroad, who knows the exact position of every train on the road, both day and night. So *our* manager would have to know the exact supply of honey on hand in every city in the United States. He would be able to supply the different markets—not from a central office but by the honey that lies nearest that market ready to ship, and only awaiting his word of

command. Of course, all the large cities would have subordinate managers, or salesmen, under and responsible to the general manager and to the board of control. Many of these subordinate salesmen might be, to save the establishment of a warehouse, etc., some well-known, responsible, and undoubtedly honest commission house They can be bound by an iron-clad contract to sell *no* honey below the price set by the general manager, for the different grades; or, otherwise, pay the difference. Also, in case honey is broken down and leaking badly, so that the shipper is likely to lose in weight, etc., the commission man should be allowed to hold a coroner's inquest over that lot, and, by the testimony of three disinterested men, the shipper should abide, and be satisfied. Other necessary restrictions might be added as occasion required. These houses—one in each city—would be glad to get this business at 5 per cent commission. Why? Because they would do five times the business in honey that they did before, when they could sell only what came to them. Now they would have control of the market, and, practically, sell all that came to that city. Any one knows that, if one house should have the handling of all the honey that goes to any city in the country, they would have a larger business in that line. Such a house, under the watchful eye of a general manager and a board of control, would be very careful not to wantonly offend or defraud a bee-keeper. Under this system the commission house should collect 7½ per cent commission—5 per cent for themselves, and 2½ for the head office, to pay expenses, etc. Who would not be willing to pay 7½ per cent to have his honey honestly handled? Why, more than half the honey shippers would make money if they had to pay 20 per cent and get the full returns for their honey. This system would likewise kill out all the fraudulent commission men, and, to a great extent, the adulterators too. It will stop adulteration, because honest retailers will know where to get pure honey. Honey will advance, because one great organization will control the bulk of all the honey in the United States. When people can't get comb honey for less than 25 cents per pound they will pay that price—in fact, *are* paying it now to sharpers. What we want, and must have, is to get 25 per pound for comb—first quality—less freight, commission, drayage, etc. Unless the honey is shipped a long distance these charges should not aggregate more than 1 cent per pound; but under the present slipshod system the *et cætera* is the largest item in the bill of charges against the bee-keeper. "Broken down," "leaking," "very dark," and "dark," are the bugbears they set up to confront him. What can the poor wretch do? They are away off, hundreds of miles, and have sold his property. He may ave men near home who saw his honey, and know its quality; but the commission merchant has *his* men to swear it was black, broken down, or leaking, as the case may be. The bee-keeper has not the ghost of a chance to win in the contest.

Bee-keepers of the East, will you join us, and make it a national exchange? Join our Exchange, irrespective of State. Read the rules and by-laws in the bee-papers. Of course, as occasion requires you will have a voice in amending or altering these rules, and in the selection of the officers. Come in from every town and county in the Union. Force it into a national exchange; join in, all ye gathering hosts, from the far Atlantic to the Pacific shore. Roll in by the hundreds; rush in by the thousands, and teach the blood-suckers that have drained the life-blood from your business that you intend hereafter to set the price of your own products. "United, we stand; divided, we fall." The laws of trade are inexorable. Where there is great opposition, and anxiety to sell, prices must and will come down; whereas, if the business were all in the hands of one great corporation, as Prof. Cook suggests, like the Standard Oil Company, there would be no such result. The object of the Exchange, however, would be, not to wring out millions from the pockets of the people, to create an aristocracy of wealth, but to demand and obtain a fair and living price for our products. Come, one and all, and we will travel together. Come from the east, west, north, and south. Skylark, and the other great men who have organized this magnificent triumph over fraud and dishonesty, welcome you with open arms. We will march on to victory together. We of California can only cut off the middlemen here, and have an honest sale through our own agents in the East. But we can get no control of the market while you Eastern men are working against us by shipping honey to commission men. "In union there is strength;" and if the East comes in and makes this exchange a national affair, we could not only command and set the price of honey in the United States, but, to a great extent, in Europe also.

CANADIAN PURE-HONEY LAW.

Mr. McEvoy sends to the *American Bee Journal* the following pure-noney bill, now before the Canadian Parliament, and which has passed its second reading. Mr. McEvoy says it will surely pass.

BILL NO. 10.

An Act further to amend the Act respecting the Adulteration of Food, Drugs, and Agricultural Fertilizers.

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

1. No imitation of honey, or "sugar-honey," so-called, or other substitute for honey manufactured or produced from cane sugar, or from any other substances other than those which bees gather from natural sources, shall be manufactured or produced or offered for sale in Canada, or sold therein; and every person who contravenes the provisions of this

Act in any manner shall, on summary conviction, incur a penalty not exceeding four hundred dollars, and not less than one hundred dollars; and in default of payment shall be liable to imprisonment for a term not exceeding twelve months, and not less than three months: Provided that this Act shall not be interpreted or construed to prevent the giving of sugar in any form to the bees, to be consumed by them as food.

2. Section six to thirty, both inclusive, of *The Adulteration Act* shall, so far as they are applicable, be held to apply to this Act in the same way as if the adulteration of honey were especially mentioned therein.

Mr. Editor, this is decidedly the best, most direct, and sweeping law, or proposed law, on this subject that I have ever seen. You notice there is no possibility of creeping around the bush by labeling an article "sugar honey," or any other kind of honey, except the pure article produced by the bees. No imitation of honey can be made, manufactured, brought into, or sold in Canada. There is not a single State in our Union that has a law that can not be evaded by labeling it "sugar honey," or "honey syrup," so that the adulterators can carry on their rascality in open day, and in defiance of law. But this Canadian bill cuts short such a possibility as that. You can sell sugar syrup, or syrup of other kinds; but you must not attach the name of honey to either of them, or you will come to grief. I don't suppose, Mr. Editor, that *you* are going to Canada to engage in the adulteration business; but I merely put you up as a kind of target to shoot at, as a matter of convenience. This bill should be scattered broadcast over the Union, and bee-keepers should exert all their influence to get it adopted in their respective States. Hurrah for bill No. 10! Hurrah for Canada!

A NATIONAL BEE-KEEPERS' ASSOCIATION.

THE ADVANTAGES OF HAVING ONE.

By George W. Broadbeck.

Friend Root:—We have always thought well of the North American Bee-keepers' Association and of the National Bee-keepers' Union. The mere thought of the possible obliteration of either by the proposed plan of amalgamation brings with it feelings of sadness. The protective influence that has been exerted by the one, and the social privileges afforded by the other, have done much toward the advancement of bee culture in this country; yet neither of these has supplied the real and necessary demands of the bee-keepers of the United States. This very proposition of amalgamation is evidence of the need of something that does not exist. We talk of the advanced state of our industry in this country in comparison with that existing in others; but when we consider our lack of organization, aside from our State associations, is this really true? Is it not strange that, during the years that have passed, we have not recognized the need of a representative organization? Why is it that we have been disposed to be so generous in the support of affiliated associations at the expense of home interests?

We believe that the most important interest to provide for to-day is the formation of an organization that will voice and further the bee-keeping industry of every section of the Union. We have always admired the indomitable and persevering skill of the German, and have taken just pride in the indomitable will and self-assurance of our enterprising Canadians; and, while there are many good qualities in both, worthy of emulation, is it not about time for us to develop some characteristics of our own? Why should not others emulate us?

There is not a country on the face of the earth that has more intelligent and capable bee-keepers than we have in the United States, and yet some of us have been chasing after every phantom organization that came along; and the present seems but the re-echo of the past.

Now, brother bee-keepers, let us bury the past, and try to live up to the demands of the present. There never has been and never will be a more propitious time for the organization of a national bee-keepers' association than now. You yourself, Mr. Editor, on page 147, in connection with the Hon. Geo. E Hilton, voice the need of just such an organization. We wonder how many times in the past we have, under like circumstances, been forced to put our hands in our pockets, and whistle, "Oh! there's a good time coming," etc., when a representative bee-keepers' association would have brought about some good results. What other organization could do such work more effectively for the bee-keepers than one that would voice the sentiments of every bee-keeping State in the Union? Our only hope of raising the standard of our industry, and to secure the much-needed legislation, is by organizing along the lines advocated. We may harp on State laws from now until the end of time; but unless we bee-keepers combine and thus secure national legislation in opposition to adulteration it will avail us nothing. We can scarcely realize the possible good that might result from such a combination. The known quantity, though, ought to be sufficient to inspire the most phlegmatic person within our ranks to a willingness to do something toward the protection of his own industry. Think of the good resulting by the proper dessemination of knowledge, the more even distribution of our product, resulting in increased consumption. This is an age of progression; and it is necessary that we keep step with the procession, otherwise we shall be relegated to the rear. Our necessities say, "Begin and build to-day; build wisely, and build well;" and when we have once erected a firm foundation, to accord with our form of government, we can enlarge its capacity as our needs demand.

As a closing suggestion we urge immediate

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consideration and action; and to further this project we would outline the following:

First, the selection of two delegates by each State association or assembly of bee-keepers where no State organization exists. After due time for selection of delegates, the persons selected organize, and proceed to formulate plans for a national bee-keepers' association. The work of this preliminary organization can all be conducted by correspondence, and then submitted to the various State associations for ratification and the selection of delegates to the first assembly, the place of meeting being central and permanent.

We trust now that every bee-keeper who resides in the United States will in some way give expression to his views on the subject presented. We feel assured that, if we thus show a willingness to present our cause, it will result in a double assurance to our usually wide-awake bee-editors that they are working for "the greatest good to the greatest number."

Los Angeles, Cal.

[If I understand you correctly, you and the other California bee-keepers would not object to the amalgamation of the two societies providing that the North American were distinctly national; that you think the present National Bee-keepers' Union should not be enlarged in its scope so as to cover Canada. There may be something in this. When the North American was incorporated, you may remember that some of our Canadian brethren raised a vigorous protest. If the North American Bee-keepers' Union, as is proposed, should become a fact, it of course would have to be incorporated, either in the United States or in Canada, in order to carry on the work of defense, to prosecute and be prosecuted — in fact, to act as a responsible person or firm. Obviously the Union, when amalgamated with the other association, should be incorporated in the United States.

I do not know that this point has ever been raised before; but possibly our Canadian bee-friends who objected the first time would object again. But whatever is done, I am most emphatically in favor of having the Union so modified that it shall have annual meetings or conventions, to discuss the all-absorbing problems that come before us, no matter whether they relate to defense against unjust legislation, prosecution of glucose-mixers, or whether they concern some of the problems as to how to manage bees. In other words, I am most heartily in favor of having the social annual-meeting feature hitched on to the Union in some way; and if it is not wise to have it international, let it be distinctly national.

In the event that the Bee-keepers' Union should be changed as I have suggested, those Canadians who have welcomed the proposed change in the North Amercan could hitch on a union to their Ontario Bee-keepers' Association. In that case the old North American could be disbanded, and the two national associations could have joint meetings at stated or occasional intervals to discuss common interests, as was done so well in the old North American, and thus Canadian and American bee-keepers would be united in one common brotherhood as before. Then the work of defense, and prosecuting adulterators, could be carried on by each distinct national association in its own country. Now, please understand that what I have said is meant in the way of *suggestion* and not as a *recommendation*. I should like to hear from others.—ED.]

THE LOW PRICES OF HONEY.

CAUSE AND CURE; THE CALIFORNIA EXCHANGE; A CAREFULLY CONSIDERED ARTICLE.

By C. H. Clayton.

It is often said that the prices of commodities are fixed by the cost of production. If this be correct, the cost of producing honey has been reduced fully 40 per cent within the last few years. But is this assertion true? I think not. The cost of production is but one of the factors governing prices, and certainly not the sole governing power. Cost enters into the value of all products, and must not be ignored; yet, at times, some other element may absolutely control for a time the price at which an article may be sold. The law of supply and demand often works an increase or decrease in prices without regard to the cost of production of the article at the exact period. A shortage in any crop brings increase of prices if the demand remains the same. A large increase in the crop, if the demand be the same, will cause the prices to fall. If the price of honey gets below the actual cost of its production, and remains so for any length of time, the production will of necessity be decreased.

Bee-keepers will not long continue the production of honey when compelled to pay out more money than they get in return for their product. The fact will curtail the production until the price obtained covers the cost. In like manner any substance that can be produced at a large profit will naturally be produced in larger amounts.

The question then arises, To what shall we attribute the low price of honey? Is it overproduction brought about by large profits? Let us see what those profits are—if any.

The capital invested in the production of honey varies much from year to year, even in the same apiary, on account of losses from various causes. The cost price of the empty hives, drawn combs, and tools used, are about the only items that can be declared to have a fixed value from year to year.

Suppose we rate the two-story hive (empty) at 75 cents; the drawn combs are, for purposes of income, well worth 75 cents each; 19 combs to hive is $11.25; bees, say 4 pounds, which would be a fair colony at the beginning of the season, at 50 cents per pound—$2.00. Total value of hive ready for business, $14.00.

We will figure nothing for cost of range, honey-house, and tools. We have as yet no reliable statistics to show the average yield which may be expected from each colony. Some yields have been published, but they

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have invariably been of the boom order, representing special yields in special years from special localities, and are of little value for average estimates. Years of records kept by individuals in average locations tend to show that the average annual production does not exceed 70 pounds per colony of honey, and ½ pound of wax. I will make no account for the year of the new swarm you may get, as its value is offset by the cost of hive and combs for its use. It may be considered to be a *forced investment* which may return you a profit another year. Your cash outlay for your colony will be, for case and can for your 70 pounds of honey, say 45 cents; labor 60 cents; freight (to our average market) 70 cents, and commission 18 cents. Now let us see what we have—estimating honey at 5 cents in the market:

70 pounds of honey	$3 50
½ pound wax, at 22	11
Total income,	$3 61
Our expenses are:	
Interest on $14.00 at 8 per cent.	$1 12
Cost of case and can	45
Labor	60
Freight	70
Commission	18
Total,	$3 05

That shows a net profit of 56 cents from our colony. Your honey has cost you a fraction over 4½ cents per pound. The honey-producers of California will not subscribe largely for the "popular" bonds now in vogue. At 5 cents per pound, the producer who gets his range free, and successfully dodges the tax-collector, will, if he produces and markets 20.000 pounds, have the munificent sum of $130 with which to buy himself a pair of overalls and a year's grub for the wife and babies. They can all go barefooted—what's the good of shoes, any way?

Last year, Southern California produced about 3500 tons of honey, and the rest of the United States probably six times as much more, making in all 24,500 tons, equal to 49 million pounds. The population is seventy millions. If every ounce of honey were used as food, which it is not, there would be but $\frac{7}{10}$ of a pound of honey for each of us. Surely over-production is not the cause of the low prices.

I happen to know that, within less than one hundred miles of San Francisco, amber extracted sold last summer at 15 cents per pound, or two pounds for a quarter, and comb honey is unknown save at the holidays, when it brings from 20 to 25 cents. The grocers in Los Angeles *to-day, February, 1896*, charge their customers from 8 to 10 cents per pound for honey that the producer receives only from 4 to 4½ cents for.

Is the consumer benefited by the low prices the producer has to take? Certainly not. I believe a part of those profits belongs to the producer and a part to the consumer. The question is, How are we to obtain what justly belongs to us? It is possible that, in order to help ourselves, we may have to first help the consumer. I contend that the real remedy for low prices with us is an enlarged demand. It goes without saying, that a demand far in excess of the present supply can be created by placing honey before the consumer at a price that he can afford to pay. The consumer is the poor man; the masses are poor, and the masses must have cheap food. It is said, that for every ill there is a remedy. I believe we have our remedy within our grasp. Let us establish, through our Exchange, selling-agencies for our honey in every town and city we can reach. Let the honey be packed by the Exchange to suit any market; let it be covered by the Exchange guaranty, and *be sold at Exchange prices*. Make those prices such as will afford a fair price to the producer, a fair compensation to the agent, and it surely will be a much lower price than he now pays to the consumer. When an agent tampers with Exchange goods or Exchange prices, bounce him. Sell no honey under any circumstances to wholesalers to be repacked—glucosed. If they want honey in small packages we will pack it for them, and put our seal upon every package.

Whenever any adulterated honey is found, enforce the law relentlessly against the offender. The masses must have cheap food; the laws of health demand pure food. It is within our power, by united action, to cheapen our product to them, and furnish them a pure, healthy article of food. To these ends the California Bee-keepers' Exchange has been formed, and it is to be hoped our brethren elsewhere will unite with us in the endeavor to accomplish what will so evidently benefit both producer and consumer.

Lang, Cal.

[Your points are well made; but it strikes me that your valuation of a colony and hive ($14.00) is too large. I had understood that bees could be bought in your State for about $5.00 on an average. The highest estimate that I remember of was $10.00, and even this was subsequently said to be too high. Your average yield, 70 lbs., may be about right, but during the last few years it is possible that it may be a little large. But if 70 lbs. is right, then the profit on the colony would be somewhere about a dollar, providing the valuation of the colony is too high. The Exchange offers a hopeful solution of the problem of low prices to the bee-keeper and high prices to the consumer.—ED.]

EXPERIENCE WITH COMMISSION MEN.

SOME PLEASANT FEATURES ON THE OTHER SIDE; TRICKS OF THE TRADE, ETC.

By F. A. Snell.

My first experience with commission men dates back to 1871, since which time I have sent honey to nearly all the large northern cities to be sold on commission, and my experience has

been somewhat varied. With a few of those dealt with, my deal was perfectly satisfactory to me, and all that could be desired. After learning their standing, rates for selling, probable prices for honey, etc., the shipments were duly made; and on arrival of the honey at its destination I was informed of the fact, and in a reasonable time got my returns, and at the figures I had expected, and sometimes one or two cents more per pound, with full weights given. In dealing with others I sometimes never got all that was due me.

One season I shipped to a commission firm ten thousand pounds of comb and extracted honey, all of which was well handled for me. With other firms I have had rates for selling given me as being 5 per cent, prices also given. The shipment was made, and, after waiting some time, I would write them in regard to arrival, how it was moving off, etc. In reply I would get something in substance like this: "Yes, the honey has arrived, but it is leaking badly; kegs poor;" or, "Combs broken in several cases; honey slow sale; prices down;" yet their very quotations were standing the same as before given, in the bee-journals. Finally, after several months I would get some returns with short weights; rates for selling figured at 10 per cent, after they had given them to me as 5. Upon writing them in regard to the rate they had previously given me, or, rather, quoted me, I was informed that on shipments of $100 or more their rate was 5 per cent, but on a less amount it was 10. Now, I consider this nothing but deception. Every firm selling honey should give its rates for selling, in a clear honest way, so that none may be deceived or wronged. The honey-producer who sends his honey to be sold on commission is at a disadvantage from first to last unless the one to whom the shipment is made is strictly honest and reliable, also experienced in his business, so that the honey may be placed to good advantage, and returns made promptly to the shipper.

I once made a small shipment of extracted honey to a dealer located in Columbus, O., who quoted higher prices than were quoted at other markets; and when I had waited for quite a long time I wrote him, and in reply I was informed that prices were lower, etc. To sum up this deal, I have only to say that I took a lower figure for a part, and the rest is yet unpaid for, and will so remain. I tried in vain for about two years to have the matter settled, but failed. Any legal action would have been folly.

Last fall I shipped ten crates to a Chicago commission firm from whom I had previously received several letters giving high quotations, and also their great facilities for selling, etc. When the returns finally came, the fine comb honey sent netted me 10 cts. per lb. I had seen his card in the bee-journals.

I could give much more of my experience with honey-dealers, but the above will suffice. I am glad to learn than GLEANINGS is sifting out the unreliable honey-dealers; and as one of the bee-keeping fraternity I thank you sincerely for your efforts in this direction. Our bee-journals should exercise greater care in the future than has at times been the case in the past, as to who shall be placed in the list of honey commission men in their lists. A good deal of loss has been sustained by bee-keepers in the past by sending their honey to those who were not reliable. Honest reliable commission men are a great help to producers in helping them to dispose of their products; and I hope such dealers may in the future abide more by the golden rule than many have done in the past.

Milledgeville, Ill.

[Yes, indeed; the bee-journals, while they always have been careful to admit into their columns only reliable commission houses, are more strict now than ever.—ED.]

THE NORTH AMERICAN.

HAS IT "BEEN A MERE SCHOOL FOR BEGINNERS"? A REPLY TO W. F. CLARKE.

By Dr. C. C. Miller.

It doesn't matter such a great deal whether the Rev. W. F. Clarke and I agree as to the *past* history of the North American Bee-keepers' Association, so far as the past is concerned; but it may matter to discuss the past so far as it has any bearing on the *future*. And if Mr. Clarke is correct in what he says on page 52 there should be a radical change. It costs a lot of money to attend one of these international conventions; and so important is it to have the time wisely and profitably occupied that it might be well to give the matter a good deal of discussion, even to using it as a topic for a symposium.

Certainly it looks as though Mr. Clarke were "away off," for his views seem to me about the reverse of correct; but it is possible I'm somewhat "off" in some points myself. So, "let us reason together."

In the first place, you think I did not quote you correctly, Mr. Clarke, when I gave in quotation-marks, "a primary class of bee-keepers." I quoted from the report of the proceedings, given by Secretary Hutchinson. On page 648 of the *American Bee Journal* he reports you, when speaking of the North American, as saying, "It has always been a local, primary class of bee-keepers."

Leaving that, let us take your revised thought as given in GLEANINGS, page 52. You say, "The association has been *for the most part* a mere school for beginners," and "we have held a sort of deestric school for those who would show plainly that they had never read a book on bee-keeping in their lives;" and, further,

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"Owing to the preponderance of local bee-keepers, many of whom are not very well up in the business, our time has been occupied in explaining to tyros what even beginners in bee-keeping may be very properly supposed to be familiar with."

Now, these are pretty severe assertions; but it will be noticed that they are merely assertions on your part, without a shadow of proof given—no attempt at giving a single instance to prove your position. If the association has, *for the most part*, been a mere school for beginners, then the programs will contain, for the most part, such topics as are interesting only to beginners: the discussions reported will be, for the most part, those that would be instructive only to beginners. Such being the case it will be easy to cite instances, and I will ask you to refer us to a North American convention of any one year, and quote the topics for the most part, all the topics quoted being such as are of interest to beginners only. As the list of topics is never long, that ought not to be a hard thing to do. To comport with your statement, the "most part" of the discussions reported will agree with the topics, and it would be asking too much to ask you to quote a majority of the discussions; but I hope you will not consider me unreasonable when I ask you to quote five sentences in the discussions, that would be interesting only to beginners. Then when you have done that, will you kindly quote from five places in the report, showing that the information given was for the benefit of those "who would show plainly that they had never read a book on bee-keeping in their lives"? And if I may tax your patience in just one more thing, please give us, from the report of that same year, five instances where the time was occupied explaining to tyros what beginners are familiar with.

If it be too much of a tax to do what I have asked, then give us part of the desired proofs; in fact, give us any sort of proof that you have been speaking the words of truth and soberness.

You speak of dislike to thoughtful papers in such connection as to make the impression that weak papers without much thought might be welcomed. What proof for this? If there be any guilt in that direction, I come nearer being the guilty person than any one else I know of. I have thought for years that essays were of no benefit to a properly conducted convention of bee-keepers; but my objection was not specially against *thoughtful* papers, for the less of thought the more the objection.

You say, "There has always been a strongly marked dislike for . . . really able discussions." Will you give us, not five, but just one tiny item of proof for this? Name just one man or woman, who has ever had any thing to do with controlling a North American convention, who has always shown, or ever shown, a marked dislike for really able discussions.

You say, "My idea was and is, that at a representative bee-keepers' meeting we have a right to look for what we don't get in manuals of bee culture; namely, a face-to-face discussion of live questions that have arisen in the practical part of our pursuit." Just my idea exactly. Now it will be in order for you to explain to us why in all these years you never before said any thing about the things that you have so plainly seen were all wrong. What topic did you ever propose that would lift us from the elementary plane, that topic being rejected?

Will you kindly give us now a few specimen topics upon which we could have "really able discussions"? for I suppose that your objection was mainly to the topics. At the different conventions there were always some of our very ablest men You were at some of them. Those able men gave us, I think, the best they had upon the topics discussed. Whatever may have been the program, there was always room, I think, for them to introduce other topics through the question-box.

Or, if the topics were not at fault, please tell us where the trouble was, and show us the remedy. There will be many more conventions, larger or smaller, all over the land — State, district, and county conventions. They have, no doubt, been taking the North American conventions, more or less, as models. Give them something better to model after.

Marengo, Ill.

S. I. FREEBORN.

IN THE REMINISCENT VEIN.

By Knott A. B. Keeper.

When I first knew the late Mr. Freeborn, of Ithaca, Wis., in 1868, he had about 80 colonies of black bees in Gallup-frame hives. The frames were about a foot square, placed crosswise of the hive, about a dozen in each. The hive had movable top and bottom boards, and was very handy. His bees were allowed to swarm naturally, and required a good deal of watching during swarming time. One day he had eighteen natural swarms. I was greatly interested to see him handle them in swarming. At that time smokers had not been much used, if invented, and, as a substitute, rags wound on sticks and set slowly burning, to produce smoke to control the bees where desired.

He had a honey-box abo ut f v ua e and a foot long, open at one end. There was a hole in the other end, through which he inserted his thumb to grasp it by. When he discovered a colony start to cast a swarm he got the box, went to a cluster of bees, put a few into the box, and held it up above his head

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near the swarm coming out. It was amusing to see the bees pour into this box, and then see them dumped out at the hive where he wanted them.

One day he had five swarms clustered at once in a bunch. I helped him look them over and find three of the queens, which were each placed in a separate hive, and the bees induced to go evenly into them to form three new colonies. Then there was a final changing of the hives next morning to even up the bees, just as many bee-keepers still practice.

S. I. FREEBORN.

Mr. Freeborn, in a year or so after, obtained a Murphy honey-extractor, the first one used in our part of the country. He afterward obtained one of Novice's extractors, and these two were used by him for several years, and extracted many tons of honey. About this time he obtained some Italian queens, and began rearing that breed of bees, and soon had his apiary fully Italianized. He had some fine queens from H. Alley, and among others one from G. M. Doolittle. This was a tested queen, and cost $5.00. After sending it, Mr. Doolittle found her progeny so good-natured and handsome that he bought her back toward the fall of the same season. Mr. Freeborn had some splendid bees from this queen. It would be interesting to read the history of her offspring at Mr. Doolittle's, and perhaps he remembers the transaction yet. This was bringing bee-keeping down to a fine point, when apiarists noted the disposition of their bees. And why not? for what terribly cross fellows some hybrids were! How savagely they would sting, and how prolific too! Then we noted how they were out first in the morning, and worked later at night than the blacks. I wonder if they behave so now.

In the fall of 1869 or '70 Mr. Freeborn and I bought of a farmer his entire stock of bees in old box hives—22 colonies. These we hauled home on a bobsled. To prevent smothering we turned the hives bottom up, and had a merry load indeed. The hives were very heavy, and we thought we had a fine lot of stores; but, alas! it was largely bee-bread instead of honey. On account of cold weather the bees could not fly before spring after removal, and they wintered rather poorly; but next spring we transferred to frame hives, and, having plenty of comb, and a good season, soon had them in fine condition. When basswoods began to bloom I concluded to remove the queens to stop breeding for a time, and let them give their attention to storing honey, which they did in royal style. The removal of the queens, however, gave me quite an adventure. When I was preparing to do the work a young son of Mr. Freeborn, who was full of mischief, and a younger brother of mine, heard my plans, and, unknown to me, went to the hives to stir the bees up; and they did it brown. I found it out after I got well to work; but, despite angry stings, I held to the work, smoked them lively, and finished the job in a reeking sweat. Hurrying to the house I combed out about a dozen stings from my hair, and then tumbled on to the bed in a dead faint. My folks dashed some cold water on my head. That roused me as quickly and painfully as if I had been struck with half a dozen clubs. Oh how it hurt! By this time I began to turn purple and red in spots all over, and felt terribly, and for once in my life I was induced to swallow some whisky, which soon brought me out all right, but always with a regret that I had to even taste the foul stuff. Strange to say, that, ever after this, I have been unable to bear a single sting without a recurrence of the same symptoms in such a severe form as to forbid further bee-keeping by me.

NURSERY FOR HATCHING CHICKENS AND QUEENS.

HOW TO REGULATE TEMPERATURE OF LAMP-NURSERIES.

H. G. Quirin.

Can more queens be taken from a nucleus by the use of a lamp-nursery? G. M. Doolittle has an article in GLEANINGS for Jan. 15 wherein he intimates that more queens can be taken from a nucleus by the use of a nursery, but says that introducing queens two or three days old has proven an unsafe method with him. Now, I should like to ask him why he would want to keep those queens in the incubator until two or three days old. I do not think I should want to do so, even if I could make a success of introducing them to nuclei. I deem it quite essential to the longevity (or good health, if you please) of the queen, that she be introduced within five or six hours after emerging from the cell, as she does not get the exercise in a

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nursery when confined long that they ought to have and do get in a nucleus. Nine-tenths of my queens have been hatched in a nursery for the past three years; but they do not remain long in the nursery, but are introduced to nuclei as fast as they emerge from the cells. Many object to the use of the nursery on account of not being able to control the temperature or the amount of fire required to maintain the proper heat. The nursery which I use does not require more than five minutes of time a week. The nursery is simply a live incubator I had built to order for hatching chickens; but it was built with the view of hatching queens also. The inside dimensions are 48x36x 12 inches. It has an automatic heat-regulator attached by which the temperature can be adjusted to any desired degree; and, when once adjusted, it needs no further attention whatever for the entire season. Of course, the nursery is not an absolute necessity, but is such a convenience and saving of queens that, when you have once availed yourself of its use, and have learned to operate it thoroughly, you will never do without it.

Now, I know that there are queen-breeders who once used the queen-nursery, but who do not now use it. If I am not mistaken, some of these parties complain about controlling the temperature, and perhaps the most of them have given up its use on this account; but this is very easily overcome by means of a pair of thermostatic bars to control the heat, which can be purchased of almost any incubator manufacturer. The pair I use, and which are very simple, are sold by J. L. Campbell, of West Elizabeth, Pa., and cost $5.00.

The advantages of a nursery are many. As fast as queen-cells are sealed they can be placed therein, and be perfectly safe—no danger of the bees tearing them down, as they will sometimes do when you have fifty or more cells in a colony; or if a virgin queen gets into the hive you will lose all your cells. Just imagine losing all of your sealed cells, with dozens of orders coming in daily! Then, too, you are obliged at times to take care of cells when the weather is too cool or otherwise unpleasant to disturb the bees taking care of the cel s.

POULTRY AND BEES.

I see in an article by Mr. Ashley that he combines poultry with bees. That is just what I have been doing. In fact, I think that, without the poultry, I should give up bees. That large nursery I have told you about, with it I hatch chickens in the winter and queens in the summer; so you see it is no dead property. The chickens (or chicks, rather), when taken from the incubator, are transferred to a brooder-house 20x60, which is heated by hot-water pipes under the brooder, where the little chicks go to get warm. The temperature is kept at from 95 to 100 degrees; and, in fact, these chicks do not get outside of the building until ready for market, which is when they weigh about 1½ to 2 lbs. each, when they are shipped to Chicago, where they command a ready sale until the middle of June, when they are shipped east instead of west.

Bellevue, O., Jan. 27.

PROOF OF A QUEEN'S PRESENCE.

TIMES WHEN WE MUST SEE HER.

By Emma Wilson.

Mr. Wood, in his article on page 891, asks why I wish to see the queen, and adds, "Proof of her presence is all that I want;" and the editor, in a footnote, says, "I never think of looking for a queen (and I don't suppose Miss Wilson or the doctor does either) when I have seen one good comb with brood and eggs properly distributed."

I beg pardon, but I still plead guilty that I very often wish to see the queen, even when I have positive proof that there is a good one in the hive. In the spring, before there is any possibility of swarming, we want to see every queen we have in our apiaries, for the reason that we want them all clipped; and although our record-book may give the record "q. cl." (queen clipped) we often find an unclipped queen in a colony the first time it is overhauled in the spring, showing quite conclusively that the bees do very often supersede their queens after the honey-harvest.

Another reason that I wish to see the queen is, that it very often happens that we wish to take a frame of brood and the adhering bees from one colony and give to another. In that case the first thing that I would do would be to find their queen and set her to one side until I could select the brood and bees that I wish to take. After removing what I wish to take from the colony I would return their queen. I never want to run any risk of taking her away, and in no way can I feel perfectly sure that I am not taking her away unless I see her.

Another reason for seeing queens is, that you may wish to requeen a colony, even when the queen is doing excellent work. I have in mind a case of that kind just now. In the Hastings apiary we had a colony of very strong and good workers; but they were very black, and, oh! but they were cross — the very crossest bees I ever had any thing to do with. We decided that that queen would have to die. But it was one thing to say she must die, and quite another to find her. Every time I opened the hive to look for the queen those miserable bees just fairly boiled over the sides of the hive, skedaddled off the frames like a flock of sheep jumping over a fence, hung in great clusters at the bottom of the frames, or dropped off. I'd close up the hive, and after they had quieted down I would try again. No matter if I didn't use a particle

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of smoke, nor how carefully I handled them, not giving them the least jar, the same performance was gone through with. But I persevered, and one day I actually did see her racing over a frame, and promptly beheaded her. Now, this was one of the times when seeing brood and eggs would not satisfy me.

Sometimes we want to use an excluder between two stories where the queen has had free access to both, or at the time of putting on supers we may want to take away a lower story, in which cases the queen must be seen.

These may not be all, but I think I have given enough instances to show that there are times when the sight of brood and eggs is not sufficient. In the instances that I have given, proof of the presence of a queen is not sufficient —the queen herself must be seen.

Marengo, Ill., Jan. 25.

[Yes, I grant there are times when we must see the queen herself; but in the great majority of cases the seeing of a frame of her eggs and brood is all that you and the rest of us really require.—ED.]

INFALLIBLE METHODS OF INTRODUCING QUEENS.

HOFFMAN FRAMES; THE PROPER WAY OF NAILING THEM.

By C. Davenport.

That "infallible" method of introducing queens, described on page 13, would, I think, prove a pretty safe way; but I have some doubts whether it would work in all cases with colonies that contained laying workers. Of late, when I have such colonies, instead of introducing a queen to them I introduce them to a queen by uniting them with another colony or colonies that have a queen.

A method which has so far proved infallible with me, and which I usually follow when I have a valuable queen to introduce, is to select some colony to receive her that is in pretty good condition, and has a laying queen, and then remove all the brood as well as the queen; but I leave or give them a number of combs containing some honey. I then introduce the queen by the usual candy plan; and after she has commenced to lay I return some or all the combs that were removed, which at the time of removal I give to some colony that is able to care for them a short time. I always remove all bees from the cage except the queen; for, like Mr. Doolittle, I think when strong bees are left in the cage, especially if they have come from a distance, they are sometimes the cause of the queen's being killed. But I practice the plan just described only when I wish to use more than ordinary care in introducing.

Last season, although I bought and introduced quite a number of queens, I lost only one, and she was introduced all right. I got two from you last spring; and while they were introduced all right, the yellow, or five-banded one, after she had been laying for a week or ten days, suddenly disappeared. There were no queen-cells nor any being started at the time. The other one from you, which was a three-banded tested Italian, proved to be a very good one. She is prolific, and her bees are great workers. With two exceptions they outstripped every thing I had last summer; but they are not as gentle as some others I have, though they are not bad bees to handle. But for me, I do not want bees too gentle.

There is one disadvantage or fault in the Hoffman self-spacing frame that I do not remember of seeing mentioned. This is, however, quite a serious one, though I do not know that it could really be called the fault of the frame itself. This consists in the way in which they are nailed together. There are two ways these frames can be nailed, and either way is right; or that is, they will work either way equally well, if one never gets any that are nailed the other way. All the Hoffman frames I have were purchased in the flat, and I think I have nailed them together wrongly; for when that extractor I ordered of you last summer came, there was a Hoffman frame all nailed together, standing in one of the baskets, and this frame was nailed together the opposite way from what mine are. What I mean is this: Suppose we take a hive and place it so it will face the south. Now, if we take that frame that you sent, and hang it in this hive, the V'd edge on the south end of the frame will be on the east side of the hive, and the V'd edge on the north end of the frame will be on the west side of the hive, and this, of course, will be the same if the frame is changed end for end. Now, if one of my frames were hung in that hive, the V'd edge at the south would be on the west side, and the V'd edge at the north on the east side just the opposite from yours, though mine will, of course, work just as well as yours; but if I were to buy 25 colonies of you, or you bought that number of me, if it were ever desired to exchange these frames, or mix them up with others in the apiary, and one should wish to do this sooner or later, they would not work together; for when two of these frames that are nailed opposite ways are placed side by side, the two V'd edges would be together and the two square edges together. While the two square edges being together would not make so much difference, the two V'd edges would, if they were crowded much, slip or crowd past each other some, and thus space too close, of course. These frames are illustrated, and we are told how to nail them together, in the catalogs; but many who have never used or seen any of these frames nailed up would not think any thing about starting to nail them a certain way as long as they kept the V'd edges on the diagonally opposite sides, and nailed them all the same way they started. It is all in the way one

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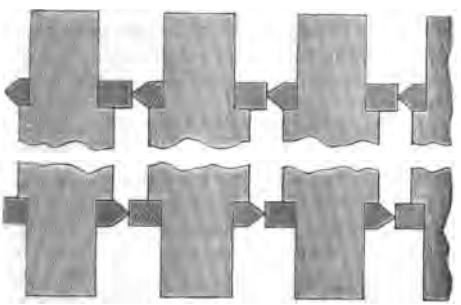
starts. Every one should start them the same way. But I should not be afraid to venture the assertion that there are about as many started one way as the other.

Last summer—or, rather, fall—I called on quite a number of bee-keepers, a few of whom were using these frames. Some had started them one way and some the other, and only two of them had thought any thing about there being two ways to start them that would give the same results until I called their attention to the matter.

Southern, Minn.

[When we put out Hoffman frames several years ago with those V edges we anticipated just the point you raise. And to forestall any trouble we had an engraving made that shows just how the V's should be placed. For convenience I reproduce the cut and the paragraph following it from our catalog:



In putting these frames together, be sure to have the V'd edges on the end-bars come on the diagonally opposite sides, and always put them together the same way. The cut above shows a section (½ size) of each end of the frames with end-bars as they should be always.

If one reads this carefully, especially the last sentence, he will have his V edges nailed like ours, or so that, when the frame is held in the hands, the V edge will touch the left thumb and the square edge the right thumb.—ED.]

CHEAP HONEY IN CALIFORNIA, AGAIN.

By Wm. G. Hewes.

I was pleased to see, by GLEANINGS for Feb. 15, that the A. I. Root Co. had investigated, and found untrue, the report that our best California honey was selling here at 3 cents per lb. There has been no honey sold at Newhall for less than 3½ cts. per lb., and that was a small lot of dark honey which had candied solid. The rest of the honey which has been sold here has brought from 4 to 5 cts. in carload lots. Some buyers have had the impudence to offer 3 cts.; but as their offers were always refused, it could never be truthfully said that 3 cts. was the price of our honey.

I see that our enthusiastic brother, Rambler, has, by a peculiar method of figuring, reached the conclusion that the honey crop of Central and Southern California amounted in 1895 to the enormous sum of ten and a half million pounds. I wish there were some way of getting at the exact figures in this matter. Rambler's, I am sure, are much too big, not only for this year, but for any year in our history. In looking over back numbers of GLEANINGS, trying to find something that would bear on this subject as regards past years, I found that the number of bee-keepers in Ventura Co. was 58, and it does not differ materially from that number to-day. If Ventura Co., one of the leading bee-sections of the State, has but 58 bee-keepers, I think Rambler will find it hard to fill out his list to 1000 in the remainder of the district—especially 1000 owning an average of 90 hives each.

I also found an article from the pen of Rambler, giving the crop of 1893 as seven million pounds throughout the State. Assuming these figures to be correct, it is at once apparent that the ten and a half million pounds for 1895 can't be right, as 1893 was in most sections the better season.

In this locality there was about a third more honey produced in 1893 than in 1895. Not only was the honey-flow better, but there were more bees in the country; as, during the dry season of 1894, many colonies perished of starvation.

I do not think bee-keepers should assist in any way in exaggerating the size of our honey crop. The buyers work industriously enough at that. Whenever we have a crop here, in order to beat down our prices greatly exaggerated reports are circulated as to the yield in San Diego, San Bernardino, and elsewhere; and I suppose exaggerated stories of our yield is the club with which they try to beat down prices in those places.

Another club which the bee-keeper cuts for buyers to pound his head with is this talk of "water-white" honey; for of water-white honey there is none. Let any one who thinks he has such honey half fill a one-quart Mason fruit-jar with honey, then pour water on top of that, and he will see that his honey is red in comparison. Skylark is the latest to be guilty of this boast. When next he gets a honey crop (too dry to expect one this year) he must not get mad and want to blow up people if the buyer, not finding his best honey as "clear and beautiful as any water from a living spring," pronounces it second grade and wants to pay for it accordingly.

A common trick for bee-keepers who exhibit at fairs is to fill their bottles with honey taken entirely from new comb, thus making an exhibit of honey which they can not duplicate in commercial quantities, as we all know that black combs darken the honey, and in large apiaries there must necessarily be many such. If any one doubts this, let him fill with water the cells of an old black brood-comb; and when he shakes it out a day or two later he will have

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ink. I have seen the best of honey made as black as molasses.

It seems certain now that we shall have no honey this year. In fact, it looks as if it were going to be a duplicate of 1894, when many bees were lost by starvation. We have had only four inches of rain up to date, March 1.

Newhall, Cal.

CLOSED-END FRAMES WITH A SPACE BACK OF THEM.

By J. E. Hand.

Mr. Editor:—I was pleased to notice the new Danzenbaker hive illustrated on p. 64—more so, perhaps, because I find incorporated into it one of the principles which I used and abandoned several years ago. This is the cleat which forms the space at the ends of the frames. I soon found, as all will in time who use this hive, that the trouble was not at the ends at all, but at the side of the hive. It was always more or less trouble to get out the first frame; and, sometimes after a rain, utterly impossible. and, as highly as I valued the closed-end standing frame, I resolved that, unless there could be some better way to get out the first frame, I should be obliged to abandon the whole business.

It was at this time that I thought of using a hive with a movable side except 1¼ inches at the bottom, which is nailed so as to hold the hive together. The movable side is clamped on by means of two VanDeuzen clamps which hold the hive practically as solid as if nailed. I have used it ever since with perfect satisfaction. This is, no doubt, a very good hive, but I think no better than the Dovetailed eight-frame, as it is too large to be used successfully as a divisible-brood-chamber hive.

On page 56 we find these words by Dr. Miller: "And for extracted honey, I'm not sure that I ever saw objection made by American bee-keepers to allowing unlimited breeding-room." I am aware that there are many producers of extracted honey who do not limit the queen; but I am not willing to admit that all American bee-keepers are in favor of any such wholesale production of brood during the harvest, only to become consumers in many locations where there is no fall honey to gather.

I know of one bee-keeper who hives his swarms in half-depth L. hives, and, after the harvest is over, drives these swarms into Dovetailed chaff hives for winter, and, by using queen excluders over these small hives, gets all the honey in the extracting-combs, and I never saw a finer article than he produced in this way. Perhaps this is one of the problems that that can be governed only by location. My own experience has been in favor of limiting the queen to 8 frames during the harvest. I found, as a rule, where the queen was allowed access to the second story, there would be several combs only partly filled with brood, and it was always more work to extract such combs than those that were full of honey; and very often such combs were not extracted at all, and for that reason I have for the past ten years used queen-excluders on all my hives run for extracted honey, with perfect satisfaction.

Wakeman, Ohio., Feb. 18.

[Mr. Danzenbaker uses in his hive a follower and wedge; and if you had used a similar arrangement in the hive you speak of, I do not think there would have been any trouble about getting out the first frame, nor any frame, in fact. The loosening of the wedge releases the follower, and then all that is necessary is simply to pry over the frame or frames.—ED.]

PREVENTING GRANULATION.

THE GREAT IMPORTANCE OF KEEPING HONEY FROM GRANULATING; HEATING TO PREVENT, NOT AS FEASIBLE AS CHEMICALS.

By C. F. Hochstein.

In GLEANINGS for March 1 I see that "E. F. C., of N. Y.," asks you for the same thing that I did some time ago, and there's no doubt but thousands of bee-keepers want the same thing. You say you would not like to put any thing in honey for any purpose whatever, meaning by this, of course, you do not want to adulterate it. I do not know the exact definition of adulteration, as I have no dictionary here in the woods; but most people consider adulteration as the mixing of an inferior article with a genuine one in order to cheapen the latter. Now, in putting a chemical in honey we put it in to preserve the honey in its natural state, and not to cheapen it; so it can not come under the head of adulteration any more than any fruit or preserve you put up with sugar to keep it from getting sour, or working. We might just as well accuse you of selling us foundation made of adulterated wax, if you use sulphuric acid to take the wax out of old combs.

Now, GLEANINGS always advocates selling honey in the home market; and right here it refuses its help to a plan that will increase the consumption of honey, raise the price, and make selling in the home market easy.

You probably ask, "How will it do this?" I will try to explain. Since I came down here I met a bee-keeper with over 150 colonies, and he used this thin Florida sugar-cane syrup on his table. I teased him about it. "Oh!" said he, "I have several barrels of honey yet, but I can not bother to use it—it's all candied." This also applies to the retailers and consumers of honey. They will not bother with it if it granulates, no matter how pure it is. They will rather use sugar-cane syrup. So granulation lessens consumption. Now, if we can get some-

thing to keep it from granulating we can sell all our honey the year round in the home market, at a good price; if not, we have to ship it to one of the large markets to get rid of it at once. This gluts the market, and, of course, lowers the price for all. You say, "Heat it to 180° and it will keep liquid for a year or two;" but you don't tell how to do this, nor what the expense of doing it is. You probably have big vats and steam to do it, and it comes easy and cheap to you; but I can't ruin a two-dollar wash-boiler in doing a fifty-cent wash. I don't know what I could do in heating honey up to 180 degrees.

Just give us a chemical, and we will use it and let you do the heating up. We don't ask you to use it.

Punta Gorda, Fla., March 13.

[Yes, I grant it would be a great thing if we could prevent honey from granulating, by a process cheaper than resorting to heat; but so far, I believe, there is nothing in the way of a chemical, or something to put in honey, known to bee-keepers or chemists, that will accomplish it. It was formerly supposed that glucose would do it; but I know from some tests I have made that it will not. As I have before reported in these columns, I have used corn syrup in quantities varying all the way from 10 to 75 per cent. The samples of honey containing these various amounts all granulated within a year. But even if glucose would answer the purpose, it could never be used by honest bee-keepers.

I grant your point that, if we could find some chemical which, used in very small quantities, would prevent granulation, and which in the first place would be more expensive than the honey, its use for this purpose would not be adulteration. If there is any chemist or any bee-keeper who knows of some chemical, let him be free to stand up and tell us. In the mean time let me suggest to you that raising honey to a temperature of 180 degrees may not be so very expensive. One bee-keeper whom I know kept his honey two years in a clear liquid state. When extracted it was first poured into pails, these pails being afterward put into a wash-boiler containing water nearly boiling. A thermometer was used; and when the honey in the pails reached 180, by a thermometer immersed in one of the pails, it was taken out and bottled while hot. In the mean time, other pails of honey were put into the boiler of hot water, and so on the operation continued. I do not remember how much he could heat in this way in a day, but I should say not far short of 1000 lbs. But you people in Florida probably would not want to fuss with wash-boilers. If you have from 10 to 15 tons of honey it would pay you well to have a boiler made of tin, large enough to cover the whole top of the stove. This boiler could be about as deep as a common tin pail. To economize room I would suggest using 60-lb. square cans, the tops cut off, and bails fastened to them. If these bails were fastened to the corners the honey could be poured right from these cans into Muth jars, because the tipped-over corner would be a "lip," allowing only a small stream to run at a time.

Until we can find some chemical, I am of the opinion that the most satisfactory method of preventing granulation is in the employment of heat; and even if a chemical is discovered, it may not be any cheaper nor as cheap.—ED.]

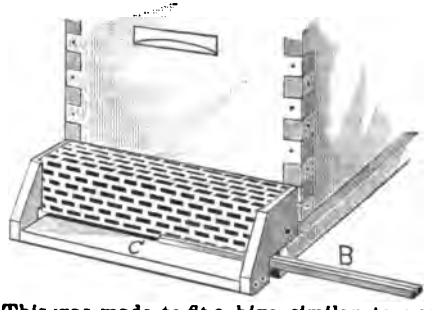
MCNAY'S IMPROVEMENT ON THE DRONE-GUARD.

By Frank McNay.

There are many bee-keepers who do not like to force their bees to work through a perforated entrance-guard all of the time, yet would find it a great advantage if they could do so a part of the time; for instance, while they are visiting an out-apiary or attending church.

I have used the common entrance-guards for this purpose, but find that it is no small task to put them in place on a large apiary, and be sure that all fit so that a queen can not escape, and then remove them so often. This difficulty has led me to invent an adjustable entrance-guard that I leave over the entrance all summer; and by means of a convenient slide under the perforated zinc I can, in ten minutes, either open or close an apiary of 100 colonies or more, so that they either pass under the zinc or through it as I desire.

When the slide is open, the guard in no way interferes with the passage of the bees; but being directly over the entrance it acts at all times as a guard against robbers. I will send you a sample to-day.



This was made to fit a hive similar to your Dovetailed hive, with a projecting bottom-board. To use it on an even-front hive like your chaff hive, all that is necessary to make a perfect fit is a short piece of common lath nailed on to pieces A A, back of slide B. One can soon rid the hives of surplus drones by opening these slides a few minutes until drones are out, then close them before they return.

Our honey crop of 1895 was greatly reduced by drouth and the severe frosts of May 12, which ruined the basswood bloom in this vicinity. However, as my apiaries extend nearly one hundred miles from home in opposite directions, lightning does not strike them all at once. Although my apiaries near home were afflicted by both severe drouth and frosts, still I secured several tons of excellent fall honey, all dark; while from those about 100 miles south-

east from home I obtained a fair crop of basswood honey, as frosts were not so severe there. From those farthest northwest we extracted about five tons of very white honey during the autumn months.

I will send you a sample of this lot. It was all obtained from the remnant of the noted Grimm apiaries, which I purchased after the death of Christopher Grimm, and shipped a carload to the northern part of the State in the care of Herbert Clute.

As some may infer that I have honey to sell, I will say that I have sold all of my crop, and also bought and sold about 25 tons from other bee-keepers.

Mauston, Wis., Feb. 19.

[Mr. McNay is one of the extensive bee-keepers of Wisconsin; therefore when his improved drone-trap came to hand I examined it with more than ordinary interest, knowing that he would not put any thing forth that would not have real practical merit. Not having tried it, but having tried the ordinary drone-traps, I am pretty well assured that he has made a decided improvement. To attach the ordinary drone-guard to an entrance just about the time when swarms may be expected, and the bees are well a-work in the field, disconcerts them considerably for about a day at least. The incoming workers will hover about the entrance for some time before they essay to go through. Of course, the drone-guards can be left on the year through, and avoid all this strangeness; but that compels the workers to pass through holes constantly when there is no need of it, just big enough for them to go through. Mr. McNay obviates this by drawing the slide B, allowing the bees to pass into the entrance at C freely. As swarming comes on, all that is necessary is to push in the slide, and the appearance of things is changed so little that the workers will pass into the hive as usual, without appearing to be disconcerted.—ED.]

THE MAGIC SECTION-PRESS.

By James Cormac.

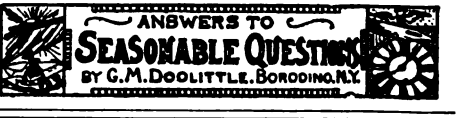
□The magic section-press and foundation-fastener, as represented in the cut, is improved by having a handle attached to the lower margin of the door, similar to a hand-stamp, that the palm of the hand is placed on when closing the door. It is the simplest and most effective, fastest, strongest, and easiest operated, of any combined device on the market. It can't get out of order unless broken, as all of the parts are formed of malleable iron and steel; lamp-chimney of tin, with isinglass in opening to regulate the blaze. The lamp is brass; size of press, 7½x8⅝ inches.

To operate you lay the section on the door, as shown in the etching, with your left-hand palm on the handle (not shown); close the door, which swings from the top; allow the starter, which you pick up with the right hand and place on the tablet on the door, to slide down and touch the metal tongue which passes through a slot in the door, and is warmed by the lamp. This contact melts the wax instantly. Allow the door to swing back a trifle. The starter is brought in contact with the section; the swing of the door wipes the melted wax from the metal plate and fastens the starter or full sheets secure. The machine is fastened to a table-leaf or board by two metal clamps attached to the back of the box. It is quite an easy task to close and fasten foundation in from three to four thousand sections per day.

The lever that closes the section is hinged with a ball socket provided with rod and lever on the lower end beneath the bottom, by which you regulate the opening of the door. As soon as the work on the section is complete, the door of its own accord returns to the position as shown in cut, ready.

Des Moines, Ia.

[We have tried one of these devices, and find that they will fold sections and put in foundation; but our people can not make it work as well and nicely as the two separate machines we are using and advertising.—ED.]



QUEENS MATING.

Question.—Do queens of second swarms "mate" before or after they lead out a swarm? I see one of our "bee-lights" says that "perhaps they may mate before going out with the swarm."

Answer.—If any bee-keeper of any prominence puts forth the claim that any queen leading out any after-swarm may mate the drone, or become fertile, before she so leads the swarms, it is something I should not expect,

and shows that he or she can not have looked into the matter very thoroughly. I have made swarming and queen-rearing a study for the past twenty years, spending hours, days, and weeks upon it; and if any queen was ever fertilized, or even flew out to meet the drone while there were other young queens in the cells, it is something I have never noticed, and something that all of my experiments go to prove never happens. All know that after-swarming comes only from a plurality of queens in the hive, and these queens are always those which have never been out of the hive at all, except as they may have gone out with an after-swarm, and been returned by the apiarist. As a rule, during after-swarming, all young queens which would naturally emerge from the cells, except the first hatched, are kept in the cells by a guard of bees which feed them through a small opening in the cell, made by the young queen trying to bite the cover off; and these queens are constantly quawking because they are kept prisoners; and the one which has her liberty is piping back in her enraged condition—enraged because the bees keep her from destroying these quawking inmates of the cells.

While such a state of things as this is kept up in the hive, no queen has any desire to mate, and no after-swarming is ever conducted except under just such a state of affairs. In one or two instances, where after-swarms had been kept back for several days by unfavorable weather, and where only one queen went with the after-swarm, I have had every evidence to believe that said queens were fertilized while out with the swarm, as I saw them entering the hive with the drone organs attached to them, and they were laying two days afterward. But the rule is, that all queens accompanying after-swarms wait about their wedding-trip until they are established in their new home, when, in two to four days after hiving, on some pleasant afternoon, the bees will come out for a playspell, and the queen be seen to leave the hive to mate.

GETTING BEES TO WORK IN UPPER STORIES.

Question.—I use the Simplicity hive, and wish to know if the hanging of a frame of brood and honey "upstairs," taken from the lower story, would get the bees up and to work more quickly. I use full wired frames of foundation.

Answer.—Yes, it would in many cases; but would it not be too much manipulation for the advantage gained? The bees will follow their brood "upstairs" every time; but it does not appear to *always* get them to work more quickly, as to starting comb-building, than by other methods. The theory, that, as bees will instinctively adhere to their brood wherever it is placed, so said brood will set the bees at work wherever there is brood, needs to be taken with a degree of intelligence; for, no matter whether the brood is kept together or separated, the bees will not go to work storing honey or drawing out comb foundation, in any part of the hive, when there is a dearth of honey; and very many do not seem to think otherwise than that the bees should be at work storing honey on every pleasant day during the time flowers are in bloom. If there were any difficulty in getting bees to work in a properly arranged surplus-apartment, when there is any thing for them to do, it would be of advantage to talk about a remedy; but my experience has been that, if there is honey in the flowers, and the weather is fine, and the brood-nest is full of brood, or brood and honey, we shall find it a difficult matter to keep the bees out of the surplus-apartment, even should we wish it otherwise, short of taking said apartment from the hive, or excluding the bees therefrom. I think all of our best practical apiarists agree that, with good average queens, a good strain of bees, proper size and shape of brood-chamber, right communications to the surplus-receptacles, bees will, without any artificial inducement, begin in the surplus-apartment just as soon as the secretion of nectar will yield any surplus.

FIXING HIVES FOR WINTER.

Question.—Would it be advisable, when preparing bees for winter, to place the combs that the bees are going to winter on, in the upper story, and then place the upper story on an empty lower story? If prepared thus would not the dead bees and foul air settle to the bottom, and the warm pure air stay at the top?

Answer.—Here is a question which should have been answered last November, but was overlooked; and as the writer has prompted me, from being anxious to have a reply, I venture to thus put it in, although somewhat out of season.

There is, without doubt, some advantage in having the hives elevated a little above the usual position during winter; and if it could be done without too much work, undoubtedly it would pay. But I should not want that elevation, when the hives are on their summer stands, to be as much as the whole depth of a hive. I think that Dr. Miller has about the right idea in his reversible bottom-board—the elevation, when on the reversed or winter side, being about two inches. I think this depth better than any greater depth. I am using some of these bottom-boards this winter; and, while they are a success with Dr. Miller, I am using the precaution which I think should always be given when trying any thing new—go slow till I have proven the thing success in my locality.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

FRUIT BLOOM IN FLORIDA.

There are many Le Conte and Kieffer pear-trees in this locality, and they are now white with bloom, with bees humming over them. Peach and nectarine trees are lovely in their pink garb, and all nature rejoices. Honey peaches are as large as hazelnuts, which taper to a point; but peentoes are flat, like a small tomato. These early varieties of peaches have so far escaped injury from frost.

The ti-ti is now blooming, and many other flowers, so that bees have no lack of pasture, even if the orange bloom has disappeared for the present. MRS. L. HARRISON.

St. Andrews Bay, Fla., Mar. 14.

ANOTHER INSTANCE OF SLIPSHODNESS IN PUTTING UP HONEY.

The article by G. F. Robbins, page 171, and your editorial, page 183, on slipshod methods of putting up honey, induce me to report the following:

In the fall of 1894 I was obliged to provide my bees with winter stores. I ordered a barrel of honey from St. Louis, at 3½ cts. When it came to hand I found that it had been an extra-fine article of fall honey, put into an old dirty whisky-barrel which, at the time, must have contained several pints of whisky mixed with charred scales from the barrel. The same honey, put up with proper care, might have easily sold in St. Louis for 6 or 7 cts. Note the difference—455 lbs. at 3½c—$15.92. The same quantity at 6c—$27.30—a difference of $11.38.

Centerville, Iowa. G. B. REPLOGLE.

HOW TO MAKE WAX FROM HONEY.

The flavor of honey here is strong and rank. Could you tell me of a plan to turn surplus frames of honey into wax by feeding back in the late fall? That is the only time I could give the bees close attention. I have 25 colonies in 10-frame hives. E. M.

[We have had no experience along the line you call for, and shall, therefore, be obliged if some of our subscribers in the warmer countries where wax is the principal commercial product from the hive will enlighten us.—ED.]

BOTTOM VENTILATION FOR HOUSE-APIARIES.

Last fall, when I packed the bees for winter I thought I would leave on all the wire-cloth screens under the hives in the house-apiary, thinking that the bees would winter better; but after more walking around the stairway I concluded to try only one. That one has wintered so nicely that now I wish I had left all of them on. This one colony is nice and dry, and hardly any bees are to be found on the bottom; those that are, are small and clean. The droppings that have fallen through the wire on those below are dry and of a brown color. Hadn't you noticed that bees that are wintering nicely nearly always show this brown dust? I am so much pleased with the plan that I will leave all wire cloths under next winter. It is the same as practically taking away the bottom-boards for cellar wintering, except my bees will be left in the house-apiary.

F. A. SALISBURY.

Syracuse, N. Y., Feb. 29.

BEES AS FERTILIZERS.

I have a nursery and market-garden and small-fruit farm. I keep bees for the purpose of fertilization. Of course, I could not give any positive facts with regard to this matter; but it is my impression that they are a benefit to the production of small fruit. But I am positive that they do not injure fruit, as I have watched them for years. We are troubled with sparrows, which will destroy grapes and other small fruit; and I have found that, after they have been picked by birds, the bees will suck the juice; and I have found sections partly filled with berry-juice, but only at times when there was a great scarcity of honey. As to the effect on seeds, I have found frequently a cross-fertilization, and of late years have always bought my own seeds for fear of this cross-fertilization. DANIEL NOBLE.

Clintonville, Wis., Feb. 20.

BEADS FOR SPACERS.

I see in GLEANINGS, page 57, that you and Dr. Miller have been discussing nails as spacers for brood-frames. Tell Dr. M. to get some beads and put one on the nail before he drives it in. He can get beads the right size. I have never seen such a thing. If you and Dr. M. wish, you can laugh at the old Scotchman who still remains your well-wisher. DAVID DICKIE.

Sparta, Ill., Jan. 24.

A NEW HIVE SUGGESTED.

Dr. Miller:—What possible objection could be raised against a hive 14x17$\frac{3}{16}$x11⅛ inside, and frame inside 10x15⅛, ¾ top-bar? T-tin supers of 1⅞x4¼x4¼ will fit exactly. This will give the much-lauded compactness of brood-chamber for breeding and wintering, to my notion; capacity, 3000 square inches.

Carthage, O., Jan. 22. JOSEPH MEYER.

[Dr. Miller replies:]

A possible (and I think real) objection is that it would be adding a hive of new dimensions, thus working against the idea of trying to hold to as few kinds as possible. Being of an odd pattern would make it a little more expensive. Other objections would vary according to the views of the objector. Those who like an eight-frame hive or smaller would call it too large, for it is nearly equivalent in size to an 11-frame

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Langstroth. Dadant would think it rather small. Advocates of the ten-frame Langstroth might object that it did not give enough super surface. Some would say the frames are too deep for comb honey. Perhaps those are enough "possible objections;" but if you try it you will probably find it a pretty good hive, although not many others will be likely to adopt it. I don't figure the capacity 3000. C. C. MILLER.

Marengo, Ill.

THE CLIMATE OF WASHINGTON STATE; A "WHACK" AT RAMBLER.

I notice an article by Rambler in which he says, in part, "An enterprising bee-keeper of Latona, Washington, has adopted the sensible plan of leaving that wet country during the rainy season, and sojourning in the salubrious climate of Southern California," etc. Now, I live in Washington, and have been in California and a good many other States, and I wish to enter a protest against his libel of our State. If Rambler would have this "enterprising bee-keeper" leave California when it gets too hot, and Maine when too cold, or some other State when he gets dried up, he would be "on the jump" all the time. The rainy season here is not so bad as some people would have you believe; and for my part I like it. We have one of the best States in the Union. I have 30 colonies of bees. I examined them on the 16th of February, and there were young bees in the hives then. W. E. DANIELL.

Sumner, Wash., Feb. 24.

HORLICK'S MALTED MILK; ITS COMPOSITION, ETC.

In regard to the composition of malted milk, would say that it consists of 50 per cent of pure fresh cow's milk, sterilized; 26.25 per cent of wheat, rich in gluten; 23 per cent of barley malt, and .75 per cent of ash and alkaline material. It is a fully cooked and partially predigested food, having a very pleasant taste, perfect solubility, freedom from any injurious or harmful ingredients, and which will supply the most concentrated nutrition in the most easily digested and convenient form. This is proven by the fact that it is used for very young children, for delicate children, invalids, and in other cases where the matter of diet is of vital importance, with the very best of satisfaction.

We are pleased to note that you have used the preparation personally with good satisfaction, so you are doubtless conversant with many of its uses and advantages. As regards its use for the grubs of young bees, we regret that we are unable to advance any opinion or advice, never having had any opportunity of testing its value for this purpose, and not knowing exactly what the composition of a proper food for such a case would be.

We have noticed one thing in connection with malted grain, and in connection with the so-called "grains" that are left after the extraction of the valuable nutritive properties from the malted grain; and that is, when exposed to the air they seem to have a great attraction for honey-bees. We think that this would show there is something in malted milk which honey-bees would have an affinity for. We hope that some of the bee-keepers will try the product, and should like to hear from them as to the success they have with it.

HORLICK'S FOOD CO.

Racine, Wis., March 12.

SECTIONS CROSSWISE OR LENGTHWISE OF THE FRAMES.

Dr. C. C. Miller:—In running for comb honey would it be a disadvantage or advantage to place the sections *crosswise* in the super to the brood-frames? I have noticed the practice of some bee-keepers, of putting the frames in the upper story crosswise for extracted honey. Is not such practice wrong in practice and in theory? This refers to the square hives, Gallup frames, and similar hives. NOVICE.

Beaumont, Cal., March 2.

[Dr. Miller replies:]

If a hive is set perfectly level, I suppose it can not make any very great difference how the super is put on. But it isn't the easiest thing to have it exactly level, and there is some advantage in having it incline forward. That helps the bees about cleaning out. With the hive inclining in that way, I certainly shouldn't want either sections or extracting-frames to run crosswise, for they wouldn't hang level, and sections would be built to one side. In any case it seems better to have frames or sections in super running the same way as in the lower story. C. C. MILLER.

Marengo, Ill.

NUMBERING HIVES.

Requisites.—A set of brass stencil numbers, 1½ inch, 40 cents; brush and ink, 25 cents.

Stencil the numbers on your hives. If you want to change the number, and your hives are painted, a wet cloth will rub the numbers off in a few seconds; but it will stand the weather more than a year. If your hives are not painted, a few strokes with A. I. R.'s 10-cent iron plane will remove the old number. Try this. It is better than tags tacked on.

Rumford, Va. R. F. RITCHIE.

Dr. Miller's second question, on page 168, reminds me that, in Germany, according to Rauchfuss Bros., alfalfa yields no honey, even when cultivated in large areas.

Arvada, Col. F. L. THOMPSON.

O busy bee! exalted so!
We'd work like you, we vow,
If we could loaf six months or so
As you are loafing now.
—*Washington Star.*

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EIGHT extra pages again this issue.

IN our last issue I spoke of the fact that there seems to be a sort of apathy on the part of bee-keepers to subscribe toward the Langstroth monument fund; and Bro. York, of the *American Bee Journal*, in commenting on this, finds the same thing to be true among his readers. I can not tolerate the idea of giving it up yet, more especially as some of our friends across the water have given generously for this purpose. Surely we American bee-keepers can not afford to be outdone by friends in England and Russia. As I said before, fifty-cent and dollar subscriptions are all we ask from the mass of bee-keepers. Every dollar will be accounted for: and when the proper time comes it will be turned over to Mr. Langstroth's daughter. Some of the friends, perhaps, would not like to have their names published opposite their small subscriptions, and so we thought we would publish none.

FREIGHT RATES ON HONEY.

FREIGHT rates on extracted honey and syrup ought to be the same; but here in the East and in the South, honey is classed higher. There is no reason why the one should not go as cheaply as the other. We have been working to get honey in the class of syrup for the East, but so far have not succeeded. Bee-keepers of the South have been putting forth similar efforts. At the bee-keeping congress at Atlanta a committee was appointed to get a concession from the Southern lines. Mr. W. S. Hart, a member of that committee, writes:

I wish to say that, as a member of that committee, I have received very courteous treatment from the traffic managers, and now feel very sure that a reduction of the rate on extracted honey to that on syrup will at least be secured over lines in this State. I sincerely hope that the rest of the committee, and all parties interested, will do every thing in their power to secure this reduction for the whole South and West through the meeting in Washington to be held next month. W. S. HART.

Hawks Park, Fla., Mar. 17.

WHERE SHALL THE NEXT NORTH AMERICAN BE HELD?

Again we want to suggest the experiment of following the G. A. R. encampment this year. As the Grand Army meets in St. Paul in September, and that city will be pretty well crowded then, we think that Minneapolis would be the proper place. All could get round-trip tickets to St. Paul, and then a small street-car fare would take them to Minneapolis in a few minutes more. It seems to us this plan is worth trying, as the railroad fare will be only *one cent a mile* at that time.

While we know that it was practically decided at the St. Joseph convention that the North American in 1896 should go to Lincoln, Neb., still we also know that those good western people are willing that the success of this year's meeting shall not be prevented by holding the North American so strictly to its pledges in a matter of this kind. Doubtless some other year, and that very soon, the G. A. R. will meet in Lincoln or Omaha; and then, if we find it a good thing to follow it around, there will be such a big meeting of bee-keepers as will simply astound our Nebraska friends, although accustomed to big things.—*American Bee Journal.*

The President of the North American says he is agreed, provided the Nebraska bee-keepers are. It seems to me that, in view of the grand opportunity of *one cent a mile*, they surely will be agreed also. One reason, yes, the main reason, why the North American has been so poorly attended at its various meetings is because of the railroad fares. Here is the only chance to get low rates.

THE TOUGHNESS OF THE NEW-PROCESS FOUNDATION.

WHEN we made foundation by the old process, dipping in short lengths and running through the mills, we trimmed the sheets by hand with a sharp butcher-knife around a form to regulate the size of the sheet. In making foundation by the new process, the sheeting is not only turned out automatically, but the trimming and piling up is done automatically also. Very recently, having an odd-sized order for the new wax, we had occasion to do considerable trimming by hand. It was then we discovered that this kind of sheeted wax was very much harder to trim. Women used to do the trimming by hand of the old dipped wax; but if we did not have the automatic machinery for trimming our new-process foundation, it would probably be necessary to have a good strong man, with good big arms and a large butcher-knife. "Why," said one of the women, as she trimmed by hand a lot of the new foundation, "this wax trims *ever so much* harder."

Recent tests in Florida having shown that the old dipped foundation was five times more liable to sag, it is not surprising that the new wax should trim so much harder.

GRADING HONEY; CO-OPERATION OF BEE-JOURNALS.

ON page 82, in the *Review*, Mr. Hutchinson, in commenting on what I said on page 222, says:

In 1892 the North American, in its meeting at Washington, still further "revised" this grading and adopted it. Since then the *Review* has kept this grading at the head of its market column, and it is printed on the blanks sent out to dealers for their use in giving quotations, and quotations are given in conformity with that grading. The editor of GLEANINGS suggests that we take up the Miller grading and use it, and says that GLEANINGS stands ready to co-operate with any of its cotemporaries. Good! But why adopt the grading of a private individual (unless it is better) when that adopted by the leading bee-keepers' society of this country has been in use three years by one journal, and during that time not one criticism has been made by dealers or shippers? If that adopted by the North American has any faults, let them be pointed out and have them corrected at its next meeting: but don't encourage the use of different sets of rules for grading, and thereby bring in "confusion worse confounded."

Since Mr. Hutchinson has called my attention to it, I have carefully compared the two gradings side by side; and I must confess that the one he uses, adopted by the Washington North American, has the advantage in point of briefness. It also has another important advantage —that it has been tried, as Mr. Hutchinson says, three years, and "during that time, not one criticism has been made by dealers or shippers." This is a big point in its favor. In order that our readers may more easily compare the two, I reproduce the Miller grading and the Washington North American grading side by side.

WASHINGTON.	MILLER.
FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.	FANCY.—All combs straight, white, well filled, firmly fastened to wood on all four sides; all cells sealed; no pollen, propolis, nor travel stain.
No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsoiled; both wood and comb unsealed by travel-stain or otherwise.	No. 1.—Wood well scraped, or entirely free from propolis; one side of the section sealed with white cappings, free from pollen, and having all cells sealed except the line of cells next the wood; the other side white, or but slightly discolored, with not more than two cells of pollen, and not more than ten cells unsealed beside the line of cells touching the wood; the comb fastened to the wood on four sides.
	No. 2.—Three-fourths of the total surface must be filled and sealed; wood well scraped of propolis.
	No. 3.—Must weigh at least half as much as a full-weight section.
In addition to this the honey is to be classified according to color, using the terms white, amber, and dark. That is, there will be "fancy white," "No. 1 dark," etc.	For the classes of honey I would suggest the four already in use, sufficiently understood from the names alone; namely, LIGHT, AMBER, DARK, MIXED.

The reader will readily see that the Washington is briefer, and really covers all the Miller grading does, with the exception that it allows for no No. 2. The editors of the bee-journals could easily hitch on such a number if such should be necessary.

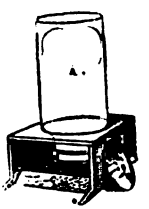
Now, then, it does not seem to me that we need very much discussion. What we need now is *action* on the part of bee-journals. If a majority of the others agree, I am willing to commence with the Washington North American grading, and put it at the head of our Honey Column, the same as Mr. Hutchinson has been doing. Why do I select the Washington? Because it has been tested three years, and the other has not been tested at all; and because it really covers all that is set forth in the Miller grading. I believe that most of the commission men who have furnished us quotations have also furnished them for the *Review*. That being the case, they could easily adapt themselves to the grading used in the *Review*, in GLEANINGS.

If all the editors fall into line, the system will be practically universal; and thereafter shipper and buyer can designate their honey by this grading. No doubt it will save a good many jangles, and a good deal of descriptive matter regarding honey that now is necessary. What say you, brother-editors?

SPRING FEEDING A LA BOARDMAN; HOW TO GET ALL THE HONEY OF THE FIELDS INTO SURPLUS.

ALTHOUGH this subject was quite fully covered by our friend Mr. Boardman in our colums a few months ago, it seems, from the number of inquiries that are pouring in, that the matter is not perfectly understood yet, and perhaps it might be well to give a few additional hints, with a little repetition, perhaps, along at this time, especially since this kind of feeding will need to be begun now in two or three weeks.

In the first place, the syrup should be made by mixing sugar and water in equal proportions. You can use heat to dissolve the sugar if you prefer, but I do not think it is necessary. Pour the sugar and water, equal parts, into an extractor-can, and turn vigorously for a few minutes.* In half an hour or so you will find a clear limpid syrup ready to draw off from the honey-gate of the extractor into those glass jars of the Boardman feeders.



I believe it is unnecessary to explain this feeder, which I believe is the best adapted for this kind of feeding. It permits of the syrup being fed a little at a time, and when the feeders are empty they can be seen at a glance, without opening the hive or disturbing the bees. In almost a minute's time it is possible to tell what feeders are empty in an apiary of 75 or 100 colonies, just by glancing down the rows, and walking rapidly across one end of the yard. For spring feeding, at least, an entrance feeder, especially Boardman's, is altogether the best.

A great many write, asking if it is necessary to feed, providing the hive is fairly well supplied with stores. Not so necessary; but if you wish to carry out the Boardman idea as I understand it, it would be advisable to feed all the colonies. Those that have a good supply already will be stimulated by the feeding, and, as a consequence, commence raising a lot of brood; and that means a host of young bees and a lot of honey later on in the season, if there is any to be had. Even if the bees are fairly well supplied with stores, they won't rear brood any thing as they do when a fresh supply is coming in every day. Of course, the colonies that are well supplied do not require as much syrup as the others that are running short. But suppose the combs are stored and the brood-nest will permit no more. Such combs of sealed stores taken out and set aside will come in play for winter.

Perhaps you may argue, "What is the use of buying syrup to feed bees in the spring, when

*If you haven't an extractor, use a tub and a stick.

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they have already enough to carry them through till the honey-flow?"

"Enough"—there's the point! If they have just barely enough, the bees will scrimp and economize in some way, to make their stores last; and the only way for *them* to economize is to cut down brood-rearing—very poor economy for *you*, certainly.

"But," you say, "if I feed the bees a little every day, the hives will be crammed full of syrup, and I shall be out of pocket to the extent of several barrels of sugar."

What of it? You will be a gainer in the end by having a large force of bees to gather the honey if it *does* come; and then when that time arrives, it will be shoved right into the supers, because there will be no room for it in the brood-nest. The honey from the fields will bring a higher price, and you have made a first-class trade—sugar for honey. More than all, your brood-combs will be filled with the very best of winter stores—much better than honey stores, and much cheaper. And suppose you *are* out of pocket several barrels of sugar. Suppose you have fed 1000 lbs. of sugar syrup, costing you, say, 4 cts. per lb. (when ripened), and suppose you get in exchange 1000 lbs. of honey. The latter ought to bring, if clover or basswood, from 8 to 9 cts. Clearly, then, you have made a profit of at least 4 cts. per lb. on the syrup, or an aggregate of $40.00 on the trade, because the honey would have taken the place of the sugar syrup in the brood-nest.

As Mr. Boardman well says, the farmer thinks nothing of feeding his stock, expecting to get returns. He who would say he could not afford to feed his hogs well because the grain that he would feed them would cost money, would be considered a fool indeed.

In view of the poor honey years that bee-keepers have been having of late, and in view of the further fact that what little honey has come in has just about filled the brood-nest, and no more, leaving little if any surplus, it would look as if Mr. Boardman's idea of substituting syrup for honey, and *pocketing the big difference* in price between the syrup and honey, was simply utilizing good business sense.

One year when I called on Mr. Boardman, he had quite a crop of honey. He had been feeding, as I have above explained. His neighbors round about him did not feed, and did not get any surplus honey. I firmly believe that many of our bee-keeping friends can just as well be getting a little surplus, and a little money for it, as to be going ahead on the old plan of getting no surplus, and nothing but bees in fair condition for winter. But suppose a big honey-flow *does* come, and you have followed Mr. Boardman's method of feeding; your hives are filled full of sugar stores, and capped over, and just fairly boiling over with bees. It is perfectly evident you are going to get a big crop of honey that year, and *all of that honey will be surplus*.

One of my warm friends in Canada has written me, earnestly protesting against feeding the bees as Mr. Boardman does, clear up to the time when honey is coming in. He insists that, as soon as bees begin to gather from natural sources, they will crowd some of the sugar syrup from the brood-nest up into the sections or surplus combs. I have talked with Mr. Boardman on this very point, and he is very certain that, as he practices feeding, it is not done. I have also talked with other prominent bee-keepers, and written for the private opinion of others. All seem to feel that there is but little danger to be apprehended from that source. But we will suppose that my Canadian friend's point is well taken. To be on the safe side, then, stop feeding within a week or two of the expected honey-flow. If the stores in the brood-nest are capped over, there certainly can be no possible danger of the syrup's being carried above.

Taking the matter all in all, Mr. Boardman's idea of feeding offers the best solution of the problem as to what we are going to do with short honey seasons—in short, what will enable us to get *all* the honey there is in the field into *surplus* without wasting any of it in brood-rearing.

BENTON'S BEE-BOOK—A 20,000 EDITION; HOW TO GET A COPY.

THE following letter is just as hand, and will contain, I am sure, very welcome news to those who have been desirous of securing a copy of that unique bee-book published by the Department of Agriculture.

Dear Ernest:—Will you kindly inform your readers that Senator Burrows' concurrent resolution as amended has passed both branches of Congress, and is now in the hands of the printer? This provides for the publication of 20,000 copies of "Bulletin No. 1, on the Honey-bee:" 15,000 of these will be distributed by Members of Congress, and 5000 by the Department of Agriculture. This Department informs me they have over 2000 applications on file now; and as soon as it is known that another edition is to be published they will be deluged with applications. Bee-keepers should apply to their Senators and Members of Congress; and should their allotment be exhausted their letters will be sent to the Department. This is essential for two reasons—it will relieve the Department of Agriculture for a time, and will impress upon Congress the magnitude of our industry, the appreciation of the bulletin, and the appreciation of their efforts in behalf of their constituency. GEO. E. HILTON.

Fremont, Mich., Mar. 16.

Congress has felt as it never did before the influence of bee-keepers all over our land; and even if we get nothing more than this one edition of the book, the effect will be such that in the future our representatives in Congress will know that we are not a mere handful; and, as Mr. Hilton well says, it will impress upon Congress the magnitude of our industry. Personally I feel like throwing up my hat and "hollering" "Hip, hip, hurrah for the bee-keepers of the United States!"

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Not to be ministered unto, but to minister.—MATT. 20:28.

Some time last fall, when the nights were cool, a farmer was returning home after having disposed of a load of produce in the city of Cleveland, some 25 miles away. His home was but a few miles from the town of Medina, among the hills of Hinckley. Down in a hollow between two great hills there is a spring and a watering-trough. It was after night; for in order to make the trip, one has to start very early in the morning, and return late in the evening. Our friend got off his wagon to uncheck his horses to let them drink; and as he was chilly he was striking his arms across his chest to get warm. The watering-place is out of sight between the hills, and I believe there is no dwelling near. Now, while he was occupied as I have described, somebody came up from behind, knocked him down, or threw him down, rifled his pockets, and escaped in the darkness. I believe they got between twenty and thirty dollars. The man was a farmer. Without question, he had been having the same difficulties that all the rest of us have had to contend with during the past year—severe drouth, and then small prices for the small crop that was secured by unusual pains and labor. I do not know what his product was that he took into the city, but it could hardly have been potatoes, for he would not have received so much money from even a very large load of potatoes. This money may have been needed to pay his taxes. Perhaps he rents a farm. If so, it may have been a part of the meager result of his hard labors during the past season, and needed to pay the rent. Perhaps his wife and children were depending on the money for necessary food and clothing. Who could have the heart to take a *farmer's* hard earnings, without rendering an equivalent? I have sometimes wondered how business men can have the heart to drive a *hard bargain* with a farmer; and I confess that I have more than once paid *more* for their produce than I could really afford, because I felt sorry for them. It is enough to sadden one's heart to witness occurrences that are going on in almost every neighborhood, to say nothing of reading the reports of crime that fill our newspapers, indicating there is a large class of humanity who have so little heed or care for the rights of others. Now, I am not going to take the ground that the world is *all* bad, for it is not true. A great majority of our people mean to be fair and upright in deal—that is, they mean to after a fashion. Sometimes they are biased by prejudice; sometimes they get contrary and wicked because others have wronged them; but to one who is looking for glimpses of the noble and Godlike and true, they will always be found. A great many times they will be coming up unexpectedly. Yes, every little while we see glimpses of that Christlike spirit that is embodied in our text—"Not to be ministered unto, but to minister." That is, there is a great amount of that trait in humanity whose foremost thought and anxiety is not *self*, but the general good of humanity at large. Oh how I do love to see that spirit! Something turns up, and one neighbor says to another, "There is your chance, John. Why don't you go ahead and make all you can out of it?" John replies, "Yes, there is a chance, and I should be very glad indeed to avail myself of it were it not that it is going to cut off the bread and butter, or inconvenience some other poor fellow." But let us go back to our story.

I do not know who the person was who knocked that farmer down and robbed him of his hard earnings. They did not get him to put him in the county jail; or, at least, if they did it was for some other offense. He is probably at large; and as he succeeded without detection, he is ready for another job of the same kind, for this is the sad result, dear friends, of letting the criminal go unpunished. To tell the truth, there *has* been a second attempt at a similar thing in that very neighborhood.

Let us consider for a moment the state of the man's heart who did this deed. Although I have talked with great numbers of criminals, I do not know that I ever found a man so base and low and inhuman as to undertake to *defend* himself in doing an act like this. I have seen quite a good many who claimed it is all right to rob a *rich* man. They would say, "He has more than he needs, anyway; he could not have come by it honestly, or why should he be so rich and I so poor?" and similar excuses; but I have never talked with anybody who even tried to excuse himself for knocking down and robbing a *poor hard-working* man. Quite a few have admitted they did it, but that it was done (at least so they said) while they were intoxicated. Whisky obliterates every spark of humanity. Very likely, highwaymen fortify themselves with liquor before committing crimes of this kind; but if this *is* true, they must admit a heart so depraved that it could coolly and deliberately *plan* such robbery. There are those among our readers—a very few—who call my religious enthusiasm a sort of craze or hobby of mine; but I think that even these people acknowledge it is a grand and praiseworthy hobby, where it leads one to devote his life to the thought embodied in our text—"Not to be ministered unto, but to minister."

Every little while nowadays, some one says there are too many people in the world; there is not room for them all. My friend, there *is* wide room—room for the *untold thousands* who feel that their mission is "not to be ministered unto, but to minister." Perhaps you wonder why I am taking up things so directly opposite. I am doing it to show you the contrast. The highwayman deliberately tramples upon every thing Christlike. He puts under foot every humane thought. He says by his acts, "I do not care if this man *did* earn the money honestly by the sweat of his face; I do not care if he *is* poor and needy; I do not care *how* hard he has worked, nor how patiently he has deprived himself of the comforts and necessaries of life. He has got some money in his pocket, and I am going to *have* it, right or wrong. If he is stubborn and unmanageable, I expect to *kill* him if I can not get his money otherwise. I do not care for retribution. If they catch me and punish me, I shall have to take it, for I am going to have his money *anyway*."

The thought has often occurred to me, "What do these men do with this money after they get it—the money they are willing to barter soul and body for? Is there any comfort or satisfaction possible to such a one? Does he enjoy his food, or is there any enjoyment in drink, and in the indulgence of the lower sensual appetites?" Then, again, I wonder, is a man ever converted to Christ Jesus after he has gone down to such depths? Does he ever turn round and devote his life toward our text—"not to be ministered unto, but to minister"? Bad men of almost all kinds have been reformed and converted. I should be glad to know if

there has ever been such a thing as a converted highwayman. What shall we do with people of this class when; they are brought to justice? When a man deliberately murders an innocent, unoffending person, just to get his money, is there any other or better way than to put him out of the world by legal process?

What wonderful capabilities there are in human progress, both upward and downward! We stand *appalled* when we witness such depths of wickedness as the human heart is capable of planning. Again, we stand appalled when we see how willingly and cheerfully some unselfish soul gives his life for the good and safety of his fellow-men. We are led to rejoice and feel *proud* of humanity when we see with what alacrity great numbers of people, scattered far and wide, spring to the relief of the suffering Armenians. Then we are appalled at the crimes and iniquity exhibited by some *other* child of humanity that lives right next-door neighbor, perhaps. How shall we lessen crime, and increase the Godlike spirit? The work in both directions is a slow process. The highwayman gets bad by degrees, little by little. The missionary who risks his life to save others, probably got to be a missionary by slow degrees. It may not be profitable to spend very much time in asking *how* sin comes into the human heart. We may easily satisfy ourselves that there is only one *great remedy*. It comes from Him who spake the words of our text. There may be other agencies that are helping; but so far as I can see—so far as God has seen fit to give me a glimpse of this vast universe as it is—I can see but one *cure* for *sin*. It is Christ Jesus—it is the encouraging and developing of the spirit that he brought into the world. The children who are taught in their infancy to love that beautiful thought, "Not to be ministered unto, but to minister," how useful and valuable they become! and herein is the only real happiness—that of being self-sacrificing. The man or woman who goes about every day taking delight in looking after the comforts and wants of others is happy all day long. They are the ministering *angels* here on earth.

Dear reader, you are standing in this great throng. Perhaps you stand midway between the two extremes. What is the great inspiring thought of your life? Is it *self* or other people? What kind of example are you setting? While I utter these words I ask myself the question, "A. I. Root, what kind of example are *you* setting?" And my conscience troubles me as I review the life I am living. I *do* enjoy ministering to others, and I do enjoy being a *servant*. I am *proud* of the name servant. It is *my* name. I tire myself out every day in service—mostly in service for *others;* but yet in many things I am *selfish* still. I feel ashamed to be obliged to acknowledge that it is terribly hard work for me to put off my daily meals or my daily sleep, in order that I may minister to the comfort of somebody else. When it is somebody I *love*, it is not so *very* hard, of course; but the Master says, "Do good to them that *hate* you." Sometimes I do this, and I always feel happy after doing it, but it is hard work. These glorious texts seem away up above my head. I have to reach up and *climb* up out of selfishness into that self-sacrificing spirit.

I wonder if, among our readers, there are many whom the world classes as "hired girls"—girls or women who are employed to help the mother do the housework. I do not know how it is in your neighborhood, but almost everywhere I go there is much complaint because they can not get girls to "work out." Such as they do get do not seem to fill the want exactly. Their spirit does not seem to be along in the line of the text—"Not to be ministered unto, but to minister." I am afraid some of the *mothers* are not exactly in a line with the text either. By the way, when somebody tells you there are *too many* people in the world, just remind them that there is a great vacancy right here. There is an unceasing and constantly unfilled demand for women helpers—for skillful, neat, cheerful, careful girls to do work. They need not necessarily be girls, either. I have known women of fifty who were real treasures in a household—household *angels* you might almost call them, and there is room for thousands upon *thousands*. Our little text sums up the great unfilled want—ministering angels. Well, we will not demand *angels* just now, for probably we can not get them (wouldn't appreciate them—*wouldn't know it* if we had them); so we will say ministering women or girls—those who come into the home to minister—that is, to wait on the people, and do whatever is to be done, and not to be "waited on" themselves. The true Christ spirit will fix it all with both mistress and maid. Shall we not, then, each and all, study more earnestly that pure and unselfish life in the book that God has given—the spirit that will help us to live with the inspiring ambition, "*Not—to—be—ministered unto,—but—to—minister*."

Health Notes.

HEALTH FOODS AT A VERY LOW PRICE, ALL READY IN YOUR HOMES.

Friend Root:—Wheat grits, Pettijohn's food, etc., unless cooked for a longt time, say three or four hours, are hard to digest, as any one can tell.

The Franklin Mills entire-wheat flour, made into a gruel or thick mush, and cooked half a day, will digest much easier than any of the so-called breakfast grains. Where the stomach will stand it, a handful of dates will make it very palatable, or a little cream over it. This is much better than milk for weak stomachs, as a general thing.

I find that apple sauce is easier to digest than any other fruit; but it must be run through a colander to make it fine. Each one will have to find out for himself what fruit agrees best. I can digest prunes easier, also, if made very fine.

Zwieback, if ground in a hand-mill, is just as good as granola, and much cheaper. It can be used in a multitude of ways. Cooked with milk it is fine. A pudding can be made with it and apples, which is nearly as good as "apple pie," by paring and quartering the apples, placing in an earthen dish, and covering with soaked zwieback, as above, and then baked till the apples are tender. Dates or raisins can be added as desired. A. F. AMES.

Claremont, Va.

After reading the above I sent to our feed-store for two quarts of their very best wheat. The cost was *five cents*. We ground it rather fine through a large-sized coffee or spice mill—one that we use in the store. This was cooked several hours, as directed above; and I am happy to say that, after using it a week, I can not see but that it is just as good as any of the health foods. The cost is only a little over a cent a pound for the raw meal. The wheat was first carefully picked over, then washed until the water could be poured off perfectly clear. It was then dried and ground. I feel sure the coarse particles of bran are, in my case, an advantage rather than a detriment. It was first cooked to a sort of mush, sliced up when cold, and warmed up in the oven before being put on the table. Of course, I used it with my beefsteak, taking at each meal twice as much lean meat, perhaps, as of the vegetable food. Now, here is one of the very best health foods. Perhaps it stands at the head, or close to the head, in the way of a vegetable

diet, and the cost is almost insignificant. The suggestions in regard to making home-made granola, especially where the housewife has unoccupied time on her hands, are also quite an item. Of course, these readily cooked food-preparations are a great advantage where the mother of the home has her time all occupied, or where saving money is not so much of an object. In one of my former articles somebody understood me as saying that I would place zwieback next to lean beef, and ahead of other lean meats. Not so. So far as my experience goes, and with the majority of people suffering from indigestion, I would place lean meat of all kinds far ahead of any vegetable food. Then comes the zwieback, the mush made of ground wheat, or whole-wheat flour, etc.

HOW TO GET UP A DELICIOUS SUPPER IN FIVE MINUTES, AND AT A VERY INSIGNIFICANT COST.

Have bread and milk for supper. Do you say that is old? Well, hold on a bit. Substitute, for the bread, zwieback made of whole-wheat flour, and scald the milk; then break the zwieback into it while it is smoking hot. You see I am getting so I can use milk once more; but Nature seems to say, "Take these good things a little at a time to commence with. Go slow, and don't clog the machinery."

HEALTH THROUGH BREATHING.

Mr. Root:—Let me contribute a mite for the benefit of your readers, especially for those of weak lungs. It is, to urge the cultivation of our breathing powers. This seems necessary when we consider that not one person in ten is in the habit of using an eighth of the breathing capacity with which God has endowed us. I will recommend a plan, free of all cost, and at no expenditure of time, for it can be practiced when not otherwise occupied, either sitting or standing, better when out of doors. Fill the lungs full of air through the nose (just here let me say that it is not healthy to breathe through the mouth; the nose was made for respiration, the mouth for eating and for speech). Draw in a full inspiration, and let it pass out slowly through the almost closed lips. Repeat this several times through the day, and follow it up every day as often as is convenient, and you will be surprised how the air goes down into all parts of the lungs; and if you are not dressed loosely about the waist, you will find that your clothes are preventing a full respiration, and consequently your blood will not be fully oxygenized and purified as it should be, and your health will suffer ultimately. Practice this, dear readers, and recommend it to others.

Hammonton, N. J. A. H. VAN DOREN.

CHEMICAL FERTILIZERS; CAN WE AFFORD TO USE THEM IN CONNECTION WITH STABLE MANURE IN OUR HIGH-PRESSURE GARDENING?

A few days ago I propounded the following to our Ohio Experiment Station:

Friend Green:—I want to plant about an acre of Thoroughbred potatoes this season, and I want to make the biggest yield possible, regardless of expense. Now, you know something about our rich ground. Will it pay us to use commercial fertilizers in addition to what we have already? As I expect my crop to be worth from $5.00 to $10.00 per bushel, I can afford to fertilize heavily, even if it does cost me money. I have already tried nitrate of soda, but can not see that it does any good on our grounds, neither do strong ashes have much if any effect. Prof. Thorn once said that our clay soil had already potash enough. Guano and stable manure, especially when lime is also used, produces a prompt and unmistakable result every time. I don't believe I should want to try mixing my own fertilizer. I have been thinking of getting Mapes' special potato-manure. Could you or some of your people advise me briefly?

You see, our rich creek-bottom land has already been filled so full of stable manure that it will grow 300 or 400 bushels per acre of potatoes; and from the experiments I have made I felt doubtful as to whether even the potato-fertilizers would produce any result worth mentioning, although I remember to have seen big results from the use of these same fertilizers during my visit at the Experiment Station, Wooster. Below I submit their reply:

Mr. Root:—In reply to yours of the 12th, asking my opinion as to the probable profit in the use of chemical fertilizers on potatoes on your rich soil, I must say that I think under the circumstances you will find profit in using them freely—at the rate of 1000 pounds per acre, or more. We have often said that here at the station we did not get the money back which was expended for fertilizers; but for all that, the fertilizers have always increased the potato crop, when the right kind was used. This has been true, no matter how rich the soil. Now, I am confident that you can, by the use of fertilizers, increase the crop 20 to 30 per cent, even on your rich soil, and this will pay with the variety which you intend to plant; but it might not with any kind which you had to sell at ordinary market prices.

In order to put the matter in a nutshell I submit the following propositions, deduced from the results of our experiments on four distinct classes of soil, some of the work having been carried on for more than five years:

1. Nitrate of soda alone has never increased the potato crop.
2. Potash, in different forms, has sometimes given an increase, but not always, and has never paid for itself when used alone.
3. Superphosphate, in the form of dissolved bone black, acid phosphate, and odorless phosphate (basic slag) have always increased the potato crop, even on the richest soil.
4. When a mixture of the three ingredients above named has been used, the increase has been greater than with superphosphate alone.
5. The cost of the increase with superphosphate alone has usually been 5 to 7 cents per bushel; but the greatest profit per acre has usually been when a combination of the three elements was used.
6. Thus it appears that, although superphosphate is the ruling ingredient, the other elements are needed in connection with it; and this seems to be more especially true as the quantity of superphosphate is increased.

I believe that you would find profit in using 1000 pounds per acre of Mapes' potato-manure; but that a mixture of your own would be cheaper and perhaps better. Five hundred pounds superphosphate, 300 pounds nitrate of soda, and 200 pounds of muriate of potash, would cost about $33.00 per ton; and for your soil it is as good as any thing that I can suggest. If you were to add to this 200 or 300 pounds per acre of tankage it would be still better, because the latter is slower in acting than the nitrate of soda. Why not mix your own fertilizers? It will pay, and you are more sure of getting what you want. If you investigate the matter you will surely be an advocate of home-mixed fertilizers.

We do not wish to injure the business of the manufacturers of fertilizers, but we should not do our duty to the farmers if we did not tell them what we know to be facts; and it is a fact that it will pay them to do their own mixing, unless they use very small quantities. W. J. GREEN.

Wooster, O., Mar. 14.

□The above gives me an idea that I never got before; namely, that, while nitrate of soda and potash used alone on a crop may give no benefit that can be perceived, the two (singly or together), when used in connection with some other fertilizers, may be important and valuable. Some years ago I made a heavy application of Mapes' special potato-fertilizer, and har-

vested a great crop of potatoes; but as I found out they used, in preparing this article, chemicals that my soil did not need, I was prejudiced against using it. With the many cares I have already on my hands, I presume I shall use the Mapes fertilizer again this season; and I shall be sure to have some test rows, without any application whatever, that I may see what benefit I can get from it.

MAULE'S THOROUGHBRED POTATO AT THE OHIO EXPERIMENT STATION; TESTING NEW POTATOES, ETC.

Mr. Root:—On page 152 of GLEANINGS, in speaking of Maule's Early Thoroughbred potato at the Ohio Experiment Station you make the following statement:

"The Thoroughbred is 357 bushels, besides being almost as early as the Early Ohio; and it seems a little singular that they do not make more of a stir about it in their comments."

In my remarks regarding this variety, which you quote on a preceding page, you will see that I state that we tested it one season only, and in a small way. The fact is, we had fourteen hills only—not a very large piece of ground on which to make much of a "stir." If the variety should turn out to be as good as it promises to be, I shall be glad to praise it more highly; but with the meager facts which I now have concerning it I do not feel warranted in saying more than has been said. It often happens that a variety does well one season and poorly the next, even on the same soil; and small plots are notoriously untrustworthy. Suppose that the soil where we had this kind planted was just a little richer than the average of the field, or that we made a slight mistake in weighing. Since we had to multiply the yield of our small plot by 874 to get the rate of yield per acre, it will be seen that a very small variation or error becomes exceedingly large after the calculation is made. A variation of a single ounce to the hill makes a difference in the result of nearly 13 bushels per acre; and it is conceivable that the variation from the normal might have been greater than that, and we not able to detect the difference in the soil. Ordinarily we make our plots the $\frac{1}{40}$ of an acre in size, and duplicate them besides, thus reducing the possible error to a very low limit. The limit of error in small plots is so large, and one season's trial so untrustworthy, that I have often thought it might be better if our reports were withheld until we get the evidence of at least two seasons' trials and the average of several large plots.

It seems best, however, after taking all things into consideration, to give out the results at first; for the results of our trials are simply to be taken as evidence, which is to be put alongside of evidence secured by others, before a correct verdict can be rendered. The final verdict is to be rendered by the public after sufficient evidence comes in. We can not settle the status of a variety; we simply help to do it; and the difference between our work and that of outsiders is that we are unbiased, and perhaps a little more careful than the average potato-grower.

Now, Mr. Root, please remember that we are working for the public, and that by far the greater part of our constituency consists of growers or buyers, while the originators and dealers are comparatively few.

It might help to increase sales somewhat if we were to make more of a stir about promising new varieties; but in my opinion the public gains more than it loses by not buying very heavily of new varieties until they are proved, and the price is reduced to a reasonable rate; hence it is our duty to be conservative, and not to bestow praise until we know it is deserved. It is better to err on this side than on the other. W. J. GREEN.

Wooster, O., Mar. 16.

Friend Green, in my remarks I did not think of criticising our Ohio Experiment Station. On the contrary, what I had in mind was right along in line with your remarks. I rejoice that we have men in such important positions as this, who are careful and conservative. Of course, I was not aware that you had only 14 hills. I am very glad indeed that you have given us this little insight in regard to your work and reports.

SCABBY POTATOES.

I have a small quantity of choice seed potatoes that were grown in an old pasture, and in one particular spot in the field the potatoes were somewhat scabby. I should like to know if it is safe to plant such seed without treating it. What is the best way to treat such potatoes to prevent scab in the expected crop? Tubers are nice and smooth, excepting some from this particular portion of the patch. This strip ran crosswise of the rows, and every variety was diseased on this part of the ground. The varieties are Mills' Prize, Stanley, Monroe Seedling, and Freeman. The last I got of you.

Arlington, Neb., Feb. 21. G. M. WHITFORD.

Most surely you should treat your scabby potatoes with corrosive sublimate. Dissolve 4 ounces in 30 gallons of water. Wash your scabby potatoes thoroughly, then put them in a coarse loose sack and immerse for two or three hours in the solution. Take them out and dry them, and they are ready to plant. But even this treatment will not secure clean potatoes on the same strip of ground you mention. You probably will have scabby potatoes there again unless you devote the ground to some other crop for two or three years. The only way to kill the scab fungus in the ground, that I know of, is by the use of sulphur, say 150 lbs. to the acre, or about 1 lb. to every square rod. This was first suggested by the *Rural New-Yorker*, and the results of careful experiments have been recently given in one of the experiment-station bulletins. Sulphur costs about 2 cts. a pound by the barrel. While some varieties of potatoes are much more liable to scab than others, it appears from your experiment that almost any variety will be scabby if planted on scabby ground. Potatoes that contain no scab, or that have been treated as above, planted on ground that has always been free from scab, are apt to be smooth. But you are liable to start the scab fungus by the manure used. If you feed your scabby potatoes to the cow, and then spread your cow manure over your ground, you are apt to have scab of the worst kind all over where the manure was spread.

MAULE'S EARLY THOROUGHBRED IN THE GREENHOUSE.

We now have potatoes as large as goose-eggs, but a good many of them are injured a good deal by being nipped by the frost; and then, to add to the damages of the frost, I made a blunder by letting them get too dry. The tops began to turn yellow, and they showed signs of ripening up. I thought it might be want of moisture, so they were watered several times; but it seems I did not water them *enough*. They are in one of the middle beds 6 feet wide and about 20 feet long. This bed is boarded up from the paths about two feet all around; so you will notice this gives it a big chance to dry out. Well, during these March days it has dried off faster than I thought for. When I tried *soaking* the bed with water, running it on until the water ran through into the paths, then I found out what the matter was; and we have now the handsomest potatoes in the greenhouse, both tops and tubers, that I think anybody ever saw. Some of the tops are fully two feet high, and of a beautiful bright green (untouched by insects of any kind), that is enough to delight the eye of any potato-grower. Many are now budded, all ready to blossom. We expect them to be ripe in time for outdoor planting. We propose to make every potato commence to sprout before we plant them out in the field.

SETTING THE GLASS IN OUR CHEAP HOT-BED SASH.

In one of the agricultural papers I saw the idea of using clay to bed the glass, instead of putty. This, of course, is for the kind of sash

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where the glass slides in grooves. Make up your sash, give them one or more good coats of paint, but be sure that the grooves are clear before the paint dries. Running a soft stick around the grooves the last thing will insure this. Now slip in the glass; but instead of using putty to make them tight so they will not rattle or leak, use fine yellow clay mixed up with water. The clay had better be dried, pulverized, and sifted well to get out all the coarse sand and foreign matter. Now make it into a smooth putty with water, and bed your glass. The advantage is this: If a glass should be broken, you can slide all of the lights below it up so as to take the place of the broken one, and put your new light in at the bottom. The repairs can be made, you see, in less than a minute. Where you have glass broken as much as we do, I tell you the above is quite an item. Of course, the glasses are to be butted together, not lapped; and after using several hundred sashes made both ways, for ten or fifteen years, I am ready to say I never want any more lapped glass on my premises, either for greenhouse, cold-frame, or hot-bed. For a greenhouse where the glass is set in the rafters, I would use liquid putty where the glasses abut together.

SPINACH UNDER GLASS.

We are just now getting 20 cts. per pound for Bloomsdale Extra Curled spinach grown under sashes. Now, this is one of the easiest plants, if not the very easiest, to grow under glass. In fact, it almost winters over in the open air, if it gets well rooted, and almost ready to send up a seedstalk the fall before. Under glass it will stand almost any amount of cold, and more *heat*, even, than lettuce. It is almost entirely exempt from insect-enemies and blight. It can be grown under the sashes when they are not used for any thing else; and a nice crop *can* be grown without any bottom heat from manure or steam, if it is started early enough in the fall so as to be just right to go under glass when severe freezing weather occurs. I think it will winter safely at 20 degrees, without any covering at all. That grown under glass is much more tender, and brings a better price, than that wintered in the open air.

SACALINE, THE GREAT FORAGE-PLANT.

Last year, if you remember, it did not amount to very much. This spring, along in February, one of the plants in the greenhouse waked up and sent up two great lusty buds. It made me think of that bamboo poem on page 814 of last year. The plant stands now a couple of feet high. Some of the leaves are nearly as large as your hat. If it keeps on pushing up, we shall have to take some of the sashes off the greenhouse just above it in the course of two or three weeks.

KAFFIR CORN.

So much interest has been lately expressed in regard to this plant that I have taken pains to read up reports in regard to it. It is one of the non-saccharine sorghums, and has been before the people for quite a number of years; but of late we seem to be getting at just the places where it is valuable. In a good corn-growing locality there may be but little use for it; but in the dry regions of Kansas and Missouri it promises to be of considerable importance. Below we give a report from one who has grown it quite extensively.

The plant has given great satisfaction here. It is a grand forage-plant, and will produce a crop in soil too poor for Indian corn. It should not be planted until the ground is *warm*—about the season for watermelon seed to go in. Its growth is rather slow at first, and, if chilled, it is apt to be seriously set back. The red Kaffir is commonly considered to yield heavier than the white. With us the yield was about even of the two varieties. We had a remarkably fine crop of each.

For poultry it is the finest kind of feed. It has a good effect on the plumage, rendering it glossy and abundant. It is likewise excellent for all kinds of stock, especially when ground, as it then digests more thoroughly. B. W. HOLDEN.

Emporia, Kan., March 6.

THE BEST VARIETIES OF TOMATOES FOR CANNING-FACTORIES.

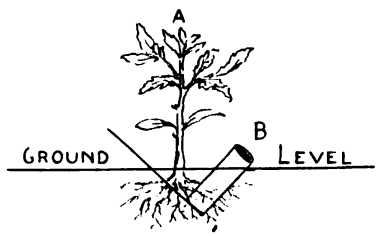
D. Cummins, proprietor of the Lakeshore Canning Factory, Conneaut, O., in answer to an inquiry, writes as follows:

Mr. Root:—We have tried some of the new varieties of tomato seed, but consider our Trophy better. We have endeavored to improve the latter by selecting each year the finest specimens only, and from this selection we grow annually about half a million plants which are distributed among the farmers growing tomatoes for us. Also the farmers growing their own plants get seed from us. Under these conditions it would not be possible to guarantee every seed absolutely pure, as a few farmers sometimes experiment with other varieties, and without taking extra precaution to prevent mixture; besides, we have an idea that bees will help to mix varieties, even if grown half a mile apart. We are well satisfied with tomatoes grown from our seed, and are quite sure the variety will please the grower anywhere. D. CUMMINS.

Conneaut, O., Mar. 20.

SUB-IRRIGATION ON A SMALL SCALE.

The following will enable you to test sub-irrigation on a few plants, and see whether you can make it work. If it does, you can have tiles laid under ground so as to water a larger tract by letting in the water at one place or several places as you may think best. If I am correct, plenty of water will control pretty much if not entirely this whole trouble with rot among tomatoes.



SUB-IRRIGATION ON A SMALL SCALE.

The above cut shows how I watered our tomato-plants during drouth last summer. A represents a plant; B, common drain-tile, 2½ inches, inserted as shown, on north side of a plant, at the angle shown. We don't want the sun to shine in at the mouth of the tile. Now pour in water, and see if they don't grow. Our experience is, that tomatoes require a great amount of water. I water plants each alternate day, giving about two quarts to each plant. This plan is not practicable for a large plat; but for a small garden it is a success. I used it on both tomatoes and cabbage; and, notwithstanding the worst drouth I ever saw, I raised a fine crop of tomatoes. I raise Fordhook Early and Matchless.

Carrollton, O. FRANK J. FERRALL.

POINTERS ON RAISING HUBBARD SQUASH.

Do not plant too early—from the 1st to the 10th of June. The more you plant, the less the big black bugs will trouble you; that is, have enough for you and the bugs too. Do not be afraid to plant a five or ten acre field, as they pay as well to feed as any crop, and what you sell usually bring a good price.

Newly cleared land is the best for them, as it does not take so much manure, and the fresh land seems to just suit them. F. S. CLARKE.

Hastings, Mich., Mar. 11.

SHIPPING APPLES AND POTATOES IN THE MIDDLE OF WINTER; HOW TO GUARD AGAINST FROST AND DROUTH.

Mr. Root:—The barrel of potatoes arrived this morning after being out 26 days, and through a cold storm, in the best condition I have received potatoes from any seedsman; and I am fully convinced that the best and safest way to ship either apples or potatoes from the North to the South, in cool weather, is to pack them in a tight barrel, well lined with paper. The reason is in accord with the laws of nature; and that is this: The potatoes or apples coming from a colder climate, hence being cooler, will, on coming to the warmer region, sweat (so called); but it is the warm air entering the package; and, the contents being cooler, it will condense, making the contents wet, hence rapid decay. But when the package is nearly air-tight it enters very slowly, so that the contents of the barrel become of the same temperature as the surrounding atmosphere, so there is very little moisture condensed, and the apples or potatoes arrive in almost the same condition as when put up.

I often receive a few barrels of apples from my Indiana friends; and when the barrels are tight, and well lined with heavy close paper, they arrive in fine condition. I am fully convinced that, if those shipping apples and potatoes south whenever it is cooler north than south, their shipments would arrive in far better condition if in air-tight barrels; and I hope you may give this a thorough test; and if you so desire, let the readers know the truth of this statement, and the natural reasons for it. I do not think such packing during warm weather would be advisable, although nature's destroying element is the oxygen of the atmosphere; so we can the fruit to preserve it from contact with this destroying element.

In the fall of 1870, in Indiana, I had my apples put in as tight barrels as I could get, headed up tight in the orchard, and removed to the cellar when danger of freezing came, and I never had apples keep so late in the spring, so sound. JOHN CRAYCRAFT.

Astor Park, Fla., Mar. 5.

SO MANY KINDS OF POTATOES.

Our Ohio Experiment Station has given us another very valuable bulletin, No. 65, on potatoes, comparison of varieties, fertilizers, etc. At present I shall mention only one of the many good points they make. Among the many new and valuable kinds there are quite a good many strikingly alike. For illustration, the Rural New-Yorker is so much like the Banner, I am afraid I should never be able to distinguish one from the other. And both Carman No. 1 and No. 3 are also a type of the specimens mentioned. The New Craig is still another very much like the four just mentioned, in size, shape, and manner of growth, except that the Craig is a little on the red order while the other four are white. Mind you, we do not claim that they are all *exactly* alike, but a good deal so. Now, our Experiment Station has made groups of potatoes that are much alike. For instance, group A comprises the Banner, Carman No. 3, Harvest King, Peerless Jr., and Rural New-Yorker No. 2.

Group C includes Early Ohio, Everitt's Six Weeks, Ohio Jr., and King of the Earliest.

Group E is Salzer's Earliest, Stray Beauty, and Bliss Triumph.

I want to say a word just here about the Stray Beauty. Last summer, when our farmers just began to bring in a few early potatoes, a man showed me a small lot of Stray Beauty. I had never seen them before; but they were so handsome I bought him out in just no time. I think they were the very first potatoes of the season I had seen, grown in our county; and as I looked at the lot standing on the sidewalk I said to myself, "If I had originated that potato, so early, so nice-looking, with that dark rich ruddy skin, I should be just happy;" and I was thinking about planting the whole creek bottom with the new early potato, the Stray Beauty. I do not know but I lay awake that night thinking about it; but when we had some for breakfast next morning, and found they were watery, and not very rich, I changed my mind. I suppose they were dug before they were ripe. But we have varieties of early potatoes that are mealy and luscious, even if they are only half grown. A few days afterward another man brought in some much larger white potatoes that he called Burpee's Extra Early. These were so much nicer for a table potato that the red ones soon got into the background, and would not sell at all. When the same man brought another load of Stray Beauty I did not make him any offer for them at all. Now, the question is, Did these folks at the Experiment Station try the Stray Beauty and Bliss Triumph for table use when only half grown? Two potatoes may look exactly alike; but when you put them on the table there may be a big difference in quality. Notwithstanding, the idea of grouping our potatoes so we need not necessarily have so many kinds (a good many of them almost exactly alike), is a most praiseworthy undertaking. We have now five or six kinds almost exactly like the Rural New-Yorker No. 2. Are they really much better?

CRIMSON CLOVER DURING THE WINTER OF 1895-'96.

At this date, March 27, our crimson clover has stood the winter, and especially the intense hard freezing and alternate thawing of March, almost without injury. The piece that was put in with buckwheat in July is almost a perfect stand. It is the greenest and prettiest piece of clover I ever saw in my life at this time of the year. That sown among the early corn at the last time of cultivating, about the first of August, looks almost as well, but the stand is not as good, and so on clear up to that which was sown up into September. The earlier it was put into the ground, the better is the stand. All that we sowed during the month of August will probably make a fair crop; but where it was sown as late as September it will hardly be worth bothering with. Of course, our extremely dry weather in the fall may have had something to do with it. We may rejoice in this: Crimson clover will stand the average winter of Northern Ohio when the seed is sown in July or early in August. When our patch gets to its best we propose to plow it under so as to get a place for our Thoroughbred potatoes. With the present high price of hay, it seems almost wicked to plow under such a crop of green feed. Of course, the great point is that you have a heavy stand of clover on your ground in nine or ten months after the seed was put in.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

THE WHITTAKER POTATO ONIONS.

See page 752, Oct. 1 issue. These have wintered splendidly in the open air, no protection, and no mulch of any kind. We can furnish the same variety for *spring planting*, postpaid by mail, at 30c per quart.

KAFFIR CORN, OR NON-SACCHARINE SORGHUM.

We have just received a shipment of seed direct of this new fodder-plant, from sections in Kansas where the seed is grown by the carload. Price, 1 lb. by mail, postpaid, 15 cts.; peck, by freight or express, 40 cts.; ½ bushel, 60 cts.; bushel (58 lbs.), $1.00.

BLUE VITRIOL AND PARIS GREEN.

So many have wished us to purchase these chemicals for them, in reply to our suggestion in our last

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issue, we have made arrangements to furnish them as follows: Blue vitriol (sulphate of copper), 4 lbs., 25 cts.; 50 lbs. or more, 6 cts. per lb.; barrel, 450 lbs., 5 cts. per lb. Paris green is such unpleasant stuff to handle that we prefer to sell it only in original packages. These are put up securely, and may be shipped without injury, as follows: 4-oz. packages, 7 cts. each; ¼-lb. packages, 12 cts. each; 1-lb. tin cans, 22 cts.; cans holding either 2 or 5 lbs., 20 cts. per lb.; 14 lbs. at 19 cts.; 28 lbs., 18½ cts.; 56 lbs., 17½; and 100 lbs. at 17 cts. per lb.

TROPHY TOMATO SEED; A CHOICE STRAIN AT VERY LOW PRICES.

Those who have read our tomato-book will notice that friend Cummins, of the Lakeshore Canning Factory, still uses a special strain of the well-known Trophy. He obtained his seed from Col. George E. Waring, about 25 years ago, and each season he has been selecting seed from the very best specimens. The consequence is, that their own strain of Trophy suits them, for their canning work, as well as or better than any of the new varieties. Well, just now they have finished planting seed for the season, and have some of the seed left of their selected strain. We have purchased 5 lbs. of this; and as we got it low in consequence of its being a little late, we offer it, to any who may want it, at the very low price of 10 cts. per ounce, or 75 cts. per lb. If you want only a five-cent package to try it, we will give a big lot of seed for 5 cts., under the circumstances.

SWEET CORN AND PARSNIP SEED GROWN IN 1894.

The Stowell's Evergreen and Mammoth sweet corn that I offered at $1.00 on page 154 is all sold out. We have a splendid lot, however, of both kinds of the *1895 crop*, at $1.75 per bushel; five or more bushels will be sold at $1.50 while the stock lasts. We have, however, a nice lot still left, of the 1894 parsnip seed at 10 cts. per lb. By tests made in our greenhouse it germinates just about as well as the new seed. We think one reason is, it was grown on very rich soil; the seeds were unusually large, plump, and heavy. If you sow it middling thick, with the intention of thinning out to get an even stand, we think it will answer every purpose of the 1895 crop; and I shouldn't be surprised if it would produce better results than a good deal of the seed in the market, harvested in 1895.

PERUVIAN GUANO.

You may remember that I have often said the only *commercial* fertilizer that gave us prompt and *sure* returns was the real Peruvian guano—the raw material before it had been tinkered up or improved (?). For two years past we have been unable to find just the article we wanted. We have now, however, found some that suits us very well. The analysis furnished with it is as follows:

Ammonia, 4.14%; phosphoric acid, 23.76%; potash, 3.09%.

You will notice in the above that the principal ingredient is phosphoric acid; ammonia and potash are small. Well, our Medina clay soil does not need potash; in fact, ashes produce little or no effect on most crops; neither does nitrate of soda seem to do any good; but the guano makes a quick and prompt showing every time. By the way, if you do not do some experimenting with it until you learn how, you will be very apt to kill your stuff by overkindness—that is, getting in too much or not having it thoroughly mixed with the soil in your plant-beds. We always put it on with a fine sieve (a Hunter sifter, for instance), and then rake the ground thoroughly after sifting it on the surface. Peter Henderson's rule used to be to sift it over a smooth level bed until it made the surface snuff-colored; then rake it in 2 or 3 inches deep, and you are all right.

We can furnish this guano to any one who wish to try it, as follows: 1 lb., 5c; 5 lbs. or more, 4c per lb.; 25 lbs. or more, 3½c per lb.; 100 lbs., $3.00; 200-b. bag, $5.00.

SEED POTATOES APRIL 1.

As we have made some additions and some changes, we submit our list of seed potatoes once more. As our first ten barrels of Maule's Early Thoroughbred are practically sold out, we have succeeded in getting five barrels more; but if you want them you will have to order quick. Maule tells us the stock will last only two or three weeks longer, and our five barrels will probably be gone before planting-time—at least, after we have reserved enough for planting one acre for our own use.

Season of maturing in order of table, the first named being the earliest.

NAME.	1 lb. by mail.	3 lbs. by mail.	¼ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 20	$ 50	$ 50	$ 90	$1 50	$ 2 50	$ 6 00
" Second crop,"	15	35	20	35	60	1 00	2 50
Early Ohio	1 50	3 00	3 00	5 00	7 50	12 50	25 00
E. Thoro'bred, Maule's*	15	35	20	35	60	1 00	2 50
Burpee's Extra Early	15	35	20	35	60	1 00	2 50
Freeman	12			20	35	60	1 50
Lee's Favorite	15	35	20	35	60	1 00	2 50
New Queen	12			20	30	50	1 25
Monroe Seedling	12			15	20	35	1 00
Beauty of Hebron	12			15	20	35	1 00
State of Maine	15	35	20	35	60	1 00	2 50
Sir William	12			20	30	50	1 25
Rural New Yorker	15	35	20	35	60	1 00	2 50
Carman No. 1	40	1 00	40	75	1 25	2 00	4 50
Carman No. 3	12			20	35	60	1 50
Irish Daisy	40	1 00	40	75	1 25	2 00	4 50
Manum's Enormous	20	50	50	90	1 50	2 50	6 00
New Craig							

Second size of Lee's Favorite, New Craig, and Freemans (other kinds *sold out*) will be half above prices. Above prices include packages for shipping. Potatoes will be shipped at once soon as order is received, so long as our stock holds out.

A full description of each and every one of the varieties will be mailed free of charge on application.

SEED SWEET POTATOES.

As there seems to be much inquiry in regard to seed sweet potatoes for bedding, and as it will soon be time to put them out, we offer them as follows: By mail, 1 lb., Yellow Jersey, 20 cts.; 3 lbs., 50 cts.; by express or freight, ½ peck, 50 cts.; peck, 90 cts.; ½ bushel, $1.25. The vineless yam or bunch sweet potato, 1 lb., by mail, 25 cts.; 3 lbs., 60 cts.; ½ peck, by freight or express, 60 cts.; pk., $1.00; ½ bu., $1.50.

THE BUNCH YAM, OR VINELESS SWEET POTATO.

This new plant is being boomed to such an extent through many of the catalogs and advertisements in the agricultural papers that I feel quite a little uneasy about it. It certainly will not succeed in all soils and in all localities to the extent the advertisements claim for it. We have tried it on our ground for the last two seasons; and while we have had some very nice potatoes or yams, it has not proved a great yielder—perhaps because my soil was too deep and rich, and they went too much to tops instead of tubers. One of the earliest to introduce it in the South, Mr. C. C. L. Dill, of Dillburgh, Ala., claims there are two distinct varieties. The first he calls the bunch yam: the next, the Spanish bunch sweet potato. From his circular we extract the following in regard to

THE BUNCH YAM.

They are early and prolific, over 400 bushels having been made per acre, and 200 is often made on thin land. The bunch yam will make on land too poor for almost any other crop. Still, the best results can be obtained only on good land and with good cultivation. For the table, our people (or, at least, a majority of them) think them superior to any other variety. They are sweet and juicy, and every hundred pounds of these potatoes contain over fourteen pounds of pure cane sugar.

Then he has the following in regard to

THE SPANISH BUNCH SWEET POTATO.

This potato originated in South Florida; and while ninety-nine out of a hundred Southern people will say the bunch yam is much the best eating potato, the one who does like it is enthusiastic over its good qualities. Northern people prefer it to all other kinds; and, as a mark of their esteem, have named it "Gen Grant." It is three or four weeks earlier than the bunch yam, a lighter color, and the vines with me were more inclined to run. In size and shape it resembles the bunch yam very much.

From the same circular we take the following directions in regard to raising the plants:

Dig a trench three or four feet wide and three feet deep; lay old rails or poles in the bottom, and then fill up with

*The entire crop is at present controlled by Wm H. Maule. We are not at liberty to sell them for less than the prices he has put on them as above; but we will present a pound, postage prepaid, free of charge, to any present subscriber of GLEANINGS, for each NEW subscription he sends; we will also send GLEANINGS one year to every person who buys one-half peck of the potatoes. If you purchase a bushel you get GLEANINGS for eight years, either sent to yourself or to eight different persons, as you may choose.

leaves or pine straw, which must be wet, and then covered two feet deep with dirt. On this put raw cotton seed to the depth of six inches, and put as much more stable manure on the cotton seed. On this put six or eight inches of leaf mold, sandy loam, top soil from the woods or fence-corners, and, if nothing better can be obtained, dry sand will do. On this, bed your potatoes. Do not let them touch each other, and cover with two or three inches of the same light soil. Never put clay or any stiff soil over or under your potatoes, unless you want them to rot. They must have a porous soil to give them air. Make your bed two or three weeks before you bed out your potatoes, to give it time to go through a sweat, and settle.

Now, I can not say which of the two is the better. We can furnish potatoes for bedding of either of the above at the prices given in our last issue; and we expect to be able to have plants to send out by the first of May. This is as early as will do to put them outdoors in our locality; and the middle of May would probably be safer. Better try all these new things on a small scale first; and as you make a success of them, then enlarge your field of operations.

Plants and potatoes can be ordered of us or friend Dill.

THE BICYCLE: ITS CARE AND REPAIR.

The above is the title of a little book written during this present year, 1896, by C. Von Culen, Delaware City, Del. It gives the most sensible and rational directions for riding, and for the care of a bicycle, of any thing I have ever yet got hold of. It is illustrated by any number of pictures; and I think that every man, woman, or child who is able to own a bicycle should have the book and read it thoroughly. The price is 25 cts.; but we will send it postpaid by mail to any of our subscribers, whose time has not yet run out on GLEANINGS, for an even 15 cts.; to other people, postpaid by mail, 25 cts.

PREPAYING FREIGHT AND EXPRESS CHARGES IN ORDER TO SAVE OUR CUSTOMERS DELAY AND LOSS.

Every little while something comes up making it necessary to prepay charges on goods in order to get them through to destination. Sometimes connecting lines refuse to receive them until they have their pay in advance. I presume this is occasioned because stuff of little value is every little while left at the express or freight office. The consignee refuses to pay this. A few days ago a good brother somewhere down south wrote that he sent a dollar to the Battle Creek folks for their health foods He ordered the goods by express. When they got away down to his place the express charges were more than the value of the stuff. He wrote me he had refused to receive them, and did not seem to be aware that he was doing any thing out of the way. A good many people seem thoughtless in regard to such matters. Suppose you set a man to doing some work for you, without saying any thing in regard to what it will cost. Suppose that, after it is done, because it costs more than you expected, you refuse to pay the bill, and go off and leave work on his hands that is of little or no value to anybody but you. Why, any one who has any degree of respect for right and justice would say you must pay the bill, and be more *careful* next time, and find out the probable cost before setting somebody at work. Now, ordering goods by express, without asking your agent what the probable expense will be, is exactly like the above. Your only way is to pay the bill and take your goods. If you think the price exorbitant, ask the express company to look the matter over and make it right if it is not right. Let us now go back to where I started.

In order to get goods through to the friends who are waiting for them we often hand over the cash to the railroad or express companies. It may be 50 cents, or it may be $5.00. Of course, the owner of the goods did not authorize us to do so; but perishable stuff would forbid waiting long enough to ask him about it; therefore, for the sake of accommodation we advance the money. As a rule we get thanks for so doing, and the money comes back promptly. Once in a while, however, we find somebody who will not even make any reply to us after we have in this way advanced "good money" to save him trouble. Such a person probably reasons thus: "I have got my goods all right. The express companies had all they ought to have, before he made the advance, and he did it without my authorizing him to." Now, where the book-keepers bring me accounts of this kind I am sometimes tempted to say, "I think that, hereafter, we will not pay any more bills for anybody until we are authorized to do so. If their goods are held by the express companies until they are spoiled, they must bear it as best they can." After I cool down a little, however, a better spirit comes up and says, "No, no, that won't do. You are following Him who said, 'Not to be ministered unto, but to minister;' and you know that, a great many times, he never got even a word of thanks. And, again, he said, 'Do good, and lend, hoping for nothing again.'"

Dear friends, I have written this because I thought may be if I gave you this view of it some of you would be a little more ready to help me bear my share of these burdens and losses.

ELECTRICAL QUACKS AND FRAUDS.

We copy the following from an article in the *Evening Post*, of New York:

No fraud on the public can be more contemptible than the obtaining of money for quack nostrums from the sick poor, for it is from that class that the professor of impossible cures gets the largest number of victims. The application of electricity gives opportunity for a large amount of such quackery. Undoubtedly electricity plays a part in the legitimate practice of the healing art; but even there it is by no means yet fully determined under what circumstances and conditions it is best applied. People have been led by the marvelous advances in the commercial use of electricity to believe any thing of its agency, in medicine as in business. Electrical brushes, belts, and the like are offered to a credulous public with a belief that the new name will win purchasers regardless of real merit.

The same listlessness on the part of the public which permitted such a disgraceful exhibition of quackery at Chicago allows the sales of such worthless so-called electrical appliances to continue. It is not complimentary to our American electrical press that, so far as it has come under our notice, ELECTRICITY is the only journal which has denounced these electrical swindles with any warmth or in any detail.

To all of the above we breathe a most emphatic amen. Pass it along, brethren of the press, until this shameful work is put down.

A LITTLE STORY WITH A BIG MORAL.

We clip the following bit of wisdom from the *Rural New-Yorker:*

In a popular restaurant of this city, hundreds of people eat dinner or lunch during the noon hour. The food is always clean and well cooked, and the waiters are polite and attentive. Apparently the business would run itself without any hitch; yet all through the hour the proprietor stands where he can see every table, and notice any mistake or evidence of dissatisfaction. The people who work for him are the best of their kind, yet they can not help doing better work when they know that the master's eye is constantly on them. The mere fact that the proprietor stands there without saying a word, but eyeing every detail, gave confidence to patrons, and made the waiters more careful than they would otherwise have been. Many a farmer loses money by leaving important details to others. No matter how painstaking or careful they may be, they do not feel the responsibilities of ownership, and they need the restraining influence of the master's eye, which, as the old saw has it, "makes the fat ox."

There, friends, if that does not hit you it does me. I have never found any business in my life that would prosper unless I kept my eye on it; and this applies most particularly to market-gardening. The presence of the proprietor, and the fact that his eye is constantly looking over every detail, makes all the difference between profit and loss. This applies not only to growing the crops but to selling the product. Of course, I can not follow our wagon in its daily rounds; but unless I know what is put on the wagon in the morning, and what is brought back at night, day after day, the business is sure to suffer. When I say this I do not mean to blame our boys and men; but in the nature of things the owner, the boss and proprietor, must have all the different lines in his fingers. If a wagon-load of something is to be delivered somewhere, he alone can tell better than anybody else whether there is not a load of something or other to be brought back, thus saving steps. This morning some Freeman potatoes were to be carried over to the house, for table use. Right where the man unloaded his potatoes were two huge baskets of agricultural papers to be carried away. He saw them; but, without orders, of course he went back with his empty wheelbarrow. Later in the day a man had to be sent with the wheelbarrow on purpose for the papers.

Now, this thing, or something like it, is occurring continually. If the owner is where he can have his eye on all that needs to be done, sometimes he can in a few minutes, by a combination of circumstances, save time, money, and heavy lifting. Two men may be passing each other. By stopping both,

and speaking half a dozen words, a dollar may be saved. When I was a juvenile I was greatly pleased with a process in mathematics called cancellation—swapping off, as it were; and this the boss should be doing continually in his business. If he has not brains enough to avoid sending a team or even a boy on a long trip with an empty wagon, and then making the same trip again to carry something in the same direction, because nobody thought of it, he had better stop being "boss" and "hire out" to somebody.

THE BEE-KEEPERS' ARMENIAN FUND.

CONTRIBUTIONS up to date are as follows:

Geo. O. Goodhue,	Danville, Que., Can.	$11 00
Harry Lathrop,	Browntown, Wis.	1 00
Chas. Faville,	So. Wales, N. Y.	2 00
O. R. Coe,	Windham, N. Y.	1 00
Wm. Garry,	Sylvan, Pa.	1 00
C. V. Kintner,	Carrollton, O.	1 00
L. R. and Mrs. M. A. Helman,	Canora, S. D.	1 00
A. I. Root,	Medina, O.	25 00
L. A. W.,	Farwell, Mich.	5 00

SEED POTATOES. 16 Varieties, early and late. True to name, $1 per barrel and upwards.
GEO. H COLVIN, Box 57, Dalton, Pa.

ORIGINAL BINGHAM SMOKERS

Wonderful Record.

Have Lasted 17 Years.

Best on Earth.

Always give perfect satisfaction. My cool wire handle and bent nose were patented in 1892; and are original. My best invention since my open or direct-draft patent in 1878. That revolutionized bee-smokers. My handle patent bent all other smoker-nozzles. None but Bingham smokers have all the best improvements. If you buy a genuine Bingham Smoker or Honey-knife you will never regret it.

The Doctor, ¼ inch larger than any on the market, 3½-inch stove, per mail, $1.50.
Conqueror, 3-inch stove, by mail, $1.10.
Large, 2½-inch stove, by mail, $1.00.
Plain, 2-inch stove, by mail, 70c.
Little Wonder, 2-in. stove, weighs 10 ounces, by mail, 60c.
Bingham & Hetherington Honey-knife, 80c.

T. F. Bingham, Farwell, Mich.

"The Southland Queen."

You ought to know what you are missing by not reading the *Southland Queen*. The only bee-journal published in the South, and the only bee-keeping school known is taught by that WORLD-RENOWNED teacher, Mrs. Jennie Atchley, through its columns. How to raise queens, bees, and honey, and, in fact, how to make bee-keeping a success, is taught in the school. A single copy is worth more to beginners than the subscription price for a whole year ($1.00). A steam bee-hive factory. Root's goods, Dadant's foundation, and all bee-supplies. You all know where to arrange for your queens and bees for '96. If you do not, send for a free catalog that tells all about queen-rearing, and a sample journal. Address

The Jennie Atchley Co.,
Beeville, Bee Co., Texas.

In writing advertisers please mention this paper.

WANTED

We want every reader of this journal, who is interested in poultry, to have a copy of NISSLY'S POULTRY ANNUAL and Catalog of "EVERYTHING FOR THE POULTRY YARD" for 1896 (12th year.) It's absolutely the most complete book of the kind published; 80 6x9 pages, finely illustrated, including eight half tone cuts of Michigan Poultry Farm. Tells all about the arrangement of our buildings; our 24 Grand Breeding Pens for '96. It describes and illustrates the BIGGEST and CHEAPEST stock of Poultry Supplies in America; tells all about our New American Incubator and Brooder. It's full of information and worth dollars to every poultryman; don't miss it. The book is FREE TO ALL but we request a 2c stamp for postage.

GEO. J. NISSLY, SALINE, MICH.

Please mention this paper.

I have one of the choicest flocks of

Brown Leghorns in the State.

Keep no other kind. Eggs, 75c per 15; $1.25 per 30.
B. G. SCOTHAN, Otisville, Mich.

Pure B. P. Rock and Black Minorca $1.25 for 15. **Eggs.**
Also cockerels for sale.
Mrs. L. C. Axtell, Roseville, Ill.

Do You Need Queens

for your own use or to sell? I can supply you, and will use you right.
J. B. CASE, FORT ORANGE, FLA.

Promptness is What Counts.

Root's Goods at Root's Prices.

Dovetailed hives, sections, foundation, Pouder's honey-jars. Send for new catalogue of every thing used by bee-keepers.

WALTER S. POUDER,
162 Massachusetts Ave., Indianapolis, Ind.

Advantages of Bee-Escapes.

No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees *inside* the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts. each, or $2.25 per doz. As in the past, this escape is manufactured by the Porters, but THE A. I. ROOT CO. are now the exclusive selling agents for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

GRAPEVINES, SMALL-FRUIT PLANTS.

Old and new varieties. Warranted extra strong. *None cheaper.* Send for catalog.
Eugene Willett & Son, North Collins, N. Y.

We are Ready To Fill Your Orders

for choice Tested Italian Queens at $1.00 each. The queens were reared in the fall of '95; are vigorous and healthy. Safe arrival and satisfaction guaranteed. Send for price list.

J. W. K. Shaw & Co.,
Loreauville, Louisiana.

TEXAS QUEENS.

If you are in need of queens, let me have your order. Price list free.
J. D. GIVENS, Lisbon, Tex.

BEE-SUPPLIES.

Largest stock and greatest variety in the West. Best goods at lowest prices. Catalog of 75 pages free.

E. KRETCHMER, Red Oak, Ia.

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. **Honest Goods at Close Honest Prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS. ROOT'S GOODS AT ROOT'S PRICES.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. **"Practical Hints"** will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Please mention this paper.

1896

To my customers and friends: Please remember that W. H. Laws is again headquarters for Italian queens, leather colored or golden, your choice. Past favors are the stimulus to greater efforts. I am trying to merit your patronage. Try me. Single queen, 90c; 6 for $4.50. Tested, $1.00; 6 for $5.00. Breeder, $2.00 each. Reference, A. I. Root Co.
W. H. LAWS, Lavaca, Seb. Co., Ark.

Hives of Bees for Sale.

I will sell a limited number of good colonies of bees this spring, in 10-frame Simplicity hives for $4 00 each, and 8-frame at $3.50 each. Queens bred from best imported stock.
JNO. A. THORNTON, Lima, Ill.

FOR SALE.—Six acres land, two story house (nearly new) barn and outhouses, 70 colonies bees, and fine orchard. Located ¼ mile from East Otto P. O., N. Y. Good situation for honey and out-apiaries.
Address A. GAMPP, Kane, Pa.

High Grade Bicycles

For $60.00 and $75.00.

Weight, 24 lbs.

These wheels, the celebrated Defiance line (made by the Monarch Cycle Company), which we handled last year with much satisfaction, are the equal of any $100 wheels on the market in material and workmanship. They are fully guaranteed; are first-class and all right. **Will take wax or first-quality white honey in trade.** Tell us what you have, and we will send you a handsomely illustrated catalog. Liberal reduction made for cash.

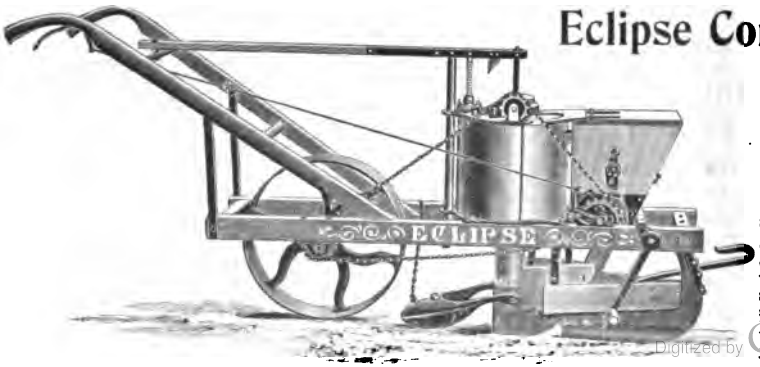
THE A. I. ROOT CO., MEDINA, O.

HATCH CHICKENS BY STEAM - With the MODEL Excelsior Incubator.

Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other Hatcher. Lowest priced first-class Hatcher made. **GEO. H. STAHL,** 114 to 122 S. 6th St., Quincy, Ill.

Circulars free. Send 6c. for Illus. Catalogue.

Eclipse Corn-planter



will plant Corn, Beans, Peas, and Beet Seeds in Hills, Drills, and Checks, in Distances desired. It is the only planter that will distribute all fertilizers, wet or dry hen manure, ashes, etc., with a certainty, in different amounts, each side of seed. Send for circulars. Mention GLEANINGS IN BEE CULTURE when you write.

ECLIPSE CORN-PLANTER CO., Enfield, Grafton Co., New Hampshire.

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Horlick's

Malted Milk

For Invalids.

It is pure rich milk and an extract of malted grain combined and evaporated to dryness. It makes one of the most pleasant, invigorating, and nutritious foods imaginable.

Endorsed by physicians everywhere for invalids, aged people, and for those suffering from nervous prostration, dyspepsia, or digestive troubles of any kind—in fact, wherever a highly nutritious and at the same time easily digested food is required.

It makes an excellent table drink in place of tea, coffee, or cocoa, being far more healthful and nutritious.

Prepared by simply dissolving in hot or cold water, or it may be eaten dry.

Correspondence solicited, and samples free.

Horlick's Food Co.,

Racine, Wis.

Please mention this paper.

NARCOTICS.

The soothing, beneficent, pain-destroying qualities of Yellowzones have led some of our customers to write asking if they do not contain opium or morphine. This is a proper question, and we should like to say distinctly that Yellowzones contain *no* opium, morphine, bromine, or other narcotic, nor any thing that will in any way create a habit or prove injurious.

Morphine overcomes pain by benumbing the sensibilities, and is unsafe. Yellowzones overcome pain by curing the disease. They subdue fever by curing inflammation. They strengthen the heart's action, and take first rank among antiseptics, thus destroying disease-germs; and this largely explains their wide sphere of usefulness. They are more and more in favor with those who use them. Are you our customer?

Boxes of 18, by mail, 25 cts.; 6 boxes, $1.00 (not less than 6 at these rates); or will send you sample of 6 for 5 cts.

We are receiving large numbers of orders by every mail. Most of our customers order in dollar lots, which is certainly the most satisfactory way. Your money promptly refunded if they do not help you.

I refer to E. R. Root as to my personal integrity.

W. B. HOUSE, M. D., Detour, Chippewa Co., Mich.

Please mention this paper

Gold-band Apiaries.

Choice Italian Bees, Queens, and Honey for Sale. Also Fox Hounds and Light Brahma Chickens. Eggs in season, $1.00 per 15.

ELIAS FOX, - - - HILLSBORO, WIS.

New England Supply Depot.

You can get the most complete ***BEE-HIVE***, also other supplies at

S. A. FISHER'S, 82 Water St., Boston, Mass.

FOR SALE! A BARGAIN!

119 colonies of Italian bees in chaff hives; good house and 2 acres of land, with excellent well of water. Also tested queens for sale at $1.50; untested, 75c. **E. L. Carrington**, Pettus, Bee Co., Tex.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

AGRICULTURISTS.—Young man, inexperienced, wants situation with some reliable farmer. Write WM. PRICE, 118 W. Congress St., Chicago, Ill.

WANTED.—To exchange 300 three-frame breeding-hives put together and painted, worth 50c, for honey or beeswax. WM. A. SELSER. 10 Vine St., Philadelphia.

WANTED.—To exchange eggs, L. Brahmas, B. Rocks, W. Blk. Buff Leghorns, for wax or Fay's currant. J. HALLENBECK, Altamont, N. Y.

WANTED.—100 Simplicity Dovetailed 10-frame flat-bottom hive-bodies, and 1000 good brood combs in exchange for honey, high-grade wheel from factory (weight 23 lbs.) Send description with price. W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To exchange safety bicycles, and an Odell typewriter, for honey, beeswax, or gasoline or kerosene engine. J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation. ANTHONY OPP, Helena, Ark.

WANTED.—To exchange 26-in. planer and matcher and scroll-saw (for power) for wood-working machinery or cash. GEO. RALL, Galesville, Wis.

WANTED.—To exchange raspberry and blackberry plants, valued at $4.00 per 1000, and Japanese buckwheat, for beeswax.
5-8 A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—Lowest prices for cash on 20 queens (untested) and 35 lbs. of bees in April and May. JAS. M. ALEXANDER, Jonesboro, Grant Co., Ind.

WANTED.—To exchange Italian bees for honey, gold watch, thoroughbred poultry, bee supplies, or offers. J. C. PROVINS, Old Frame, Pa.

WANTED.—To exchange healthy full colonies in Simplicity hives, for bicycle. JAMES A. LYON, Clarksville, Tenn.

WANTED.—Erie and Minewaska blackberry, Turner, Hansel, Palmer, and Souhegan raspberry-plants, or fine extracted honey, for Japan plum, Dutchess and Bartlett pear, and apple-trees, or Warfield, Haverland, and Lovet strawberries. S. A. JACKSON, Fort Wayne, Ind.

WANTED.—To exchange Monarch feed-mill, good as new, valued at $15.00, for offers. JAMES P. HALL, Wyanet, Bureau Co., Ill.

WANTED.—An experienced man (single) to work in apiary; must be a hustler. J. A. ARBUCKLE, Greeley, Colo.

WANTED.—To exchange second-hand hives, hives in the flat, for any thing useful. Send for list. J. F. MICHAEL, Greenville, O.

WANTED.—To exchange St. Bernard puppies for extra fine ones, for something useful. For prompt reply, address, with stamp, SCOTT BRILLHART, Millwood, Knox Co., Ohio.

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CATALOG OF TOOLS AND HOUSEHOLD SPECIALTIES.

A copy of this catalog should reach the hands of our readers, just in advance of this number of GLEANINGS, or soon after, and we trust it may be helpful to many in supplying their needs about the home.

SECTIONS 3⅞x5x1⅞, OPEN CORNERS.

The sections used in the 10-32 hive are 7 to foot in width. We have some 19,000 sections of same size, 1⅞ wide, made last season for Danzenbaker's Safety hive, which we offer at $2.50 per 1000; 5000 for $12.00. There are some of the same at San Mateo, Fla., which may be had there at 25c per 1000 extra, and also some in Los Angeles, Cal., which can be had at $1.00 per 1000 extra.

GREEN WIRE CLOTH.

Owing to lack of harmony among the manufacturers of wire cloth, the present price is very low. We are able to offer first-quality window-screen cloth, any width, 24 to 36 inches, from stock, at $1.35 per hundred square feet, for full rolls, 100 feet long; cut rolls at 1½c a foot. Orders for three rolls or more may be shipped direct from Chicago or New York. Orders to be sent here in every case.

VAN DEUSEN FLAT-BOTTOM FOUNDATION

There are those who use the Van Deusen flat-bottom foundation, and prefer it. We have a supply of this in No. 3 for sections, in large sheets or 17x30, 25 lbs. to the box, which we offer at Van Deusen's regular price—$12.50 per box. We have it in stock here and at our Chicago branch, and it may be ordered from either place, or we will take orders to ship direct from the manufacturers if preferred.

EXTRACTED HONEY.

We are having a fair demand for extracted honey, and can supply either California sage, alfalfa, willow-herb, or clover and basswood mixed. The willow-herb is unusually white and nice. Price for single 60-lb. can, 8c per lb.; 2 cans in a case, 7½c; 2 cases or more, 7c. Alfalfa, in 1-gallon or 12-lb. cans, 6 in a case, at $1.00 per can; $5.40 per case. Correspondence solicited with those desiring large lots. Samples mailed free to intending purchasers.

COMB-HONEY MARKET.

We are entirely sold out of comb honey. Several commission houses in Cleveland have been calling on us for honey, the market there being rather bare. A large dealer in Chicago writes that they are sold out of honey. We also filled a good-sized order from St. Louis for honey. If there is any honey being held by bee-keepers, our judgment is that now is a good opportunity to dispose of it before the new crop is ready for market. If choice grades are well sold off, the market for lower grades should improve from now on till '96 honey is ready.

BEESWAX MARKET.

Quotations and offerings just received from large dealers in beeswax indicate a more liberal supply at somewhat easier prices. We do not look for any higher prices this season, and we look for lower prices by June if not before. Those who may have a supply of wax on which they desire to secure the top price will do well not to hold it too long. While we are not likely to make lower prices yet for 60 days, we can not guarantee to pay present prices any longer than the condition of the market warrants. Present price is 28c cash, 30 in trade for average wax delivered here.

MAPLE SYRUP AND SUGAR.

The supply of maple sugar and syrup is more plentiful, and prices have declined somewhat. Orders have not come in as freely as in former years, so that we now have a surplus which we offer at the following prices:

Choice first-run syrup, in one-gallon square cans, at 85c per gallon; 10 gallons at 80c; 20 gallons or over, 75c per gallon. Good quality, not first run, 5c per gallon less. Choice maple sugar, best grade, 9c per lb.; second grade, 8c; third grade, 7c; 50-lb. lots, ½c less; 200-lb. lots, 1c per lb. less.

CARLOAD SHIPMENTS.

Since our last report we have shipped, with one we are now loading, three carloads of hives to Texas; one carload to Inyo Co., Cal.; a car to Rocky Ford, Colo.; one to Jos. Nysewander, Des Moines, Iowa; one to our Chicago branch, and are loading one for Reno, Nev., as we go to press. We are preparing a second car for St. Paul, and a carload for the northeastern branch at Mechanics Falls, Maine, where J. B. Mason, an old veteran supply-dealer, will look after the interests of bee-keepers in want of our goods. Just as we go to press an order comes by wire for a carload of sections to Central California.

DANZENBAKER HIVES.

We have a quantity of Danzenbaker's 10-32 comb-honey hives, shown in the advertising columns, ready to send out promptly on orders to those desiring to test this hive. The arrangement shown in this department in last issue was for the accommodation of those desiring to try the tall section on regular hives. In quoting a price on the 5½-inch eight-frame super, with these 3⅞x5 sections we made an error which we here correct. The 5½-inch super complete with crosswise section-holders, separators, sections, and starters, in flat, 50c each, in lots of 10; without starters, 45c each; without sections or starters, 35c each; separators also omitted, 30c each.

CALIFORNIA BEE-KEEPERS' EXCHANGE.

We have made arrangements with the California Bee-keepers' Exchange to supply them with our goods in car lots at wholesale prices. So far as we have examined into the objects and proposed workings of this organization we believe it may be of immense benefit to the bee-keepers of that State and the country generally, provided the bee-keepers practically all join the association. The advantages promise so well, and the cost of membership is so nominal, that we should be much surprised if they do not all heartily unite in this effort for their mutual benefit. Particulars may be obtained by addressing Bee-keepers' Exchange, P. O. box 152, Los Angeles, Cal. Our stock in the hands of G. G. Wickson & Co., San Francisco and Los Angeles, is subject to the call of the Exchange.

SECOND-HAND FOUNDATION-MILLS.

At this writing we have in stock the following second-hand comb-foundation machines, all of which are desirable mills for the prices.

One 6-inch hex., No. 1467. Price $12 00. This will make extra thin foundation, 11 to 12 feet per lb., and is in good order.

One 6-inch Vandervort, No. P. P. Price $9.00. This mill is in fairly good condition, and will make foundation about 11 feet to the pound.

One 10-inch round cell, No. 1602. Price $10.00. This mill is in fairly good order, and a bargain at the price. Will make medium to light brood foundation.

One 10-inch round-cell, N. N., old-style frame. Price $10 00. This mill, although old style, is in good order, having been used but very little, and will answer nicely for medium brood foundation.

NEW MILLS AT SPECIAL PRICES.

Besides the above second-hand mills we have a few new ones, not quite up to our present high standard of excellence, which we will close out at special low prices. Except for dealers who are very particular for a superior-looking foundation, these will answer as well as any.

One 6-inch hex., No. 1185. Price $12.00. This has a rather deep cell wall, and will make surplus foundation 9 to 10 feet to the pound; would answer nicely for light brood starters or half L. sheets; a bargain at this special price.

One 6-inch hex., No. 1299. Price $12.00. Same description will fit this mill.

One 6-inch hex., No. 1507. Price $12.00. This has a little finer cell wall, and will make foundation 10 to 11 feet to the pound. A bargain.

We have little or no demand for mills larger than 10-inch, except in Europe, where we sell many 12 and 14 inch machines; but they all require the hex. cell, so we offer the few round-cell mills of these sizes at special cut prices to close them out.

We have one 12-inch round deep cell, No. 1252. Price $25.00; just right for medium and heavy brood foundation.

Also three 14-inch round-cell machines, Nos. 1387, 1561, and 1600; first-class machines. Price $30.00 each.

Remember, the regular prices for these sizes are $36.00 and $42.00. They have the large 2¼-inch rolls, geared at both ends, and are a bargain to any one who can use this size and style of cell.

Just as we go to press we get the following, dated March 25, 1896:

SPRAYING WITH ARSENITES, VS. BEES.

The Ohio Experiment Station has made a series of very careful experiments to ascertain the probable effect on bees of spraying fruit-trees when in bloom with solutions of arsenical poisons. The results, which will be published in full in Bulletin 68, now in the printer's hands, show conclusively that bees may be killed in large numbers by such spraying; and as spraying at that time is never necessary for the destruction of injurious insects it should be altogether avoided. The trees should be sprayed before blooming, and as soon as the blossoms have all fallen, but never while in bloom.

Not only are bees useful as honey-gatherers, but they are essential to the fertilization of the flowers. Without bees we should probably have little or no fruit.

VEGETABLE-PLANTS READY TO SEND OUT APRIL 1.

Asparagus-roots, both one and two years old; cabbage-plants, *cold-frame* sold out; but we have a fine stock of twice-transplanted, at the same price as cold-frame plants--10 cts. for 10, 80 cts. per 100. These were put in cold-frames outside, a good distance apart, because they were too crowded in the greenhouses. Cauliflower-plants, nice ones, same price as above. Celery-plants, White Plume, 5 cts. for 10, 40 cts. per 100. The above are the only vegetable-plants we have at present in good shape, ready to send out. We have a good stock of nice strawberry-plants at 15 cts. for 10, or 75 cts. per 100. All the above can be sent by mail at an addition of 5 cts. for 10, or 25 cts. per 100, for postage. We can not sell good strawberry-plants—that is, what I call good—at the prices advertised this present spring by many growers. We have a fine stock of Prize-taker onion-plants which will be ready, probably, by the middle of April. For further particulars in regard to both seeds and plants, see our spring catalog, just issued, mailed free anywhere on application.

KIND WORDS FROM OUR CUSTOMERS.

I have used the B. Taylor comb leveler, and it is a success. D. H. WHITMORE.
Etna, Minn., Feb. 26.

Having used one of B. Taylor's levelers for the past two years, I wish to say to the many readers of your journal that it ought to be had in every apiary. It levels the comb very nicely and quickly, leaving the comb in fine shape for the bees to fill, making just as nice a card of honey as can be made by full sections of foundation. WM. URIE.
Minneapolis, Minn., Feb. 15.

ADVERTISING IN GLEANINGS.

I do not wish my ad. continued longer in GLEANINGS. I have sold part of my bees, and fully expect orders for the remainder. The ad. has brought me letters from Connecticut to Colorado, and from Canada to Texas. JAMES MACH R.
Linwood, Kan., March 11.

We are still unpacking your goods. So far all is satisfactory. The foundation is simply superb—the finest we ever had. Those Clark smokers can't be beat for material and workmanship. If it continues as it has begun we shall have to duplicate lots of our first order. J. NEBEL & SON.
High Hill, Mo., Feb. 29.

I do *not* want GLEANINGS stopped. It is a help to me in many ways—as a bee-keeper, a gardener, a farmer, and a Christian. C. E. VARNUM.
Atco, N. J., March 10.

Certainly your seeds are very much below others, except in quality, which is A No. 1.
Lochiel, Ind., March 7. A. C. BUGBEE.

We have received 17 inquiries mentioning your paper, up to Feb. 22. We think that, if you could have used one of our reading-notices, it would have made a still better showing. IOWA SEED CO.
Des Moines, Ia., Mar. 2.

You will find $1.00 inclosed for GLEANINGS, as I can't afford to stop it on account of two failures that we have had here these last two years.
Poneta, Ind. J. W. COOK.

I think lots of GLEANINGS. I have not smoked any since the first year that GLEANINGS came to my house. So much good for me. E. B. PIER.
Factoryville, Mich., Dec. 23.

FINISH NOT EXCELLED.

Accept my thanks for the fine lot of goods you have sent me. I am highly pleased with it. I do not believe it can be excelled in fineness of finish, and I hope another order will follow this.
Lund, Tex., March 25. NELS ANKARSTOLPE.

Yours inclosing check for balance on wax is received. I see you are still in the habit of "doing a little better than agreed" by those who deal with you, for which please accept thanks.
Fort Howard, Wis., Jan. 10. C VAN HEURCK.

I inclose $1.00 to pay my subscription on GLEANINGS, to the end of 1896. I think it is the best paper or journal of its kind printed; and as long as it continues to be as good as it now is, I will continue to take it, if I can scare up the $1.00 to pay for it.
Marion, Mich., Jan. 23. R. S. CHAPIN.

I could not get along without GLEANINGS, and my wife says the same. May God give you strength of soul and body to go on for many years with your grand work. GEO. M. DEIBERT.
Florence, Colo., Jan. 24.

I start next month for the Rambler's country. If I have as much pleasure in dealing with your agent in California as I have had with the home firm, I shall probably continue to use your goods, as I think them the very best made. S. E. MCKEE.
Port Huron, Mich., Jan. 10.

GLEANINGS is the only bee-paper that I am now taking. I have taken it ever since its advent, and don't expect to cut it off very soon. It is away ahead of all others, and the cheapest bee-literature published. W. D. WRIGHT.
Altamont, N. Y., Jan. 6.

The two tested queens came duly to hand, and I am pleased to say they were alive and in good order; but had they been two or three days longer they would most likely have been all dead, for the food was all consumed. I like your new shipping-cage very much, but would suggest that, for long journeys, a little more food might be added.
W. P. CLENNETT.
Port Esperance, Tasmania, Australia, Nov. 24.

SOMETHING IN REGARD TO GLEANINGS' ADVERTISERS.

[I hardly need tell our readers that we expect our advertisers to be good, square, honest men. In fact, we take a great deal of pains to ascertain that they are such before they are permitted to use our columns; and when any one of them is found to be not straight in deal we wish to be informed of it at once. But do not write to us until you have written to them, so that the matter is fully understood on both sides. The following is the closing part of a letter from one of our good veterans who had a little difficulty with one of our advertisers:]

In this connection I will say I have had dealings with many other advertisers in GLEANINGS during the last 20 years, more or less, and, with this solitary exception, always satisfactorily. When I say 20 years you will know that I am one of the oldest GLEANINGS subscribers. I commenced with No. 1 Vol. I. when it was printed, I believe, by wind power. Of course, GLEANINGS was (and is) always a

a welcome guest—so much so that it seems as though we were well acquainted with A. I. R. and his family. My dear wife, who recently was taken from me by the relentless hand of death, always read with great interest what she called Mr. Root's *sermons*, which she enjoyed very much.

Hobart, Ind., March 13. JOHN G. BLACKHALL.

THE SALISBURY TREATMENT.

I read GLEANINGS with very great pleasure, and am glad that place is found for exalting man's best helper, Jesus Christ. I have received a copy of Mrs. Elma Stuart's book, and, having read it, I decided to adopt the hot-water treatment in part. Every morning since Dec. 23d I have taken the pint of hot water, and every evening the same before retiring. The result is, an absence of that tired, heavy feeling that I had daily; a better digestion; good sleep at night; a suppleness of limb, an enjoyment of life.

I have seven hives of bees, in which my growing boys are greatly interested. They are situated in the center of a good vegetable garden, and quite set it off. GEO. A. REEVE.

Gladstone, N. S. W., Jan. 22.

Please mention this paper.

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Bloomer, Ark.

Money-order Office—Lavaca, Ark.

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It contains instructions, and descriptions of a full line of Bee-keepers' Supplies made by the A. I. Root Co. Send list of goods wanted and get prices Beeswax made up, bought, or taken in exchange.

M. H. HUNT, Bell Branch, Mich.

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W. B. HOUSE, M. D., DETOUR, CHIPPEWA CO., MICH.

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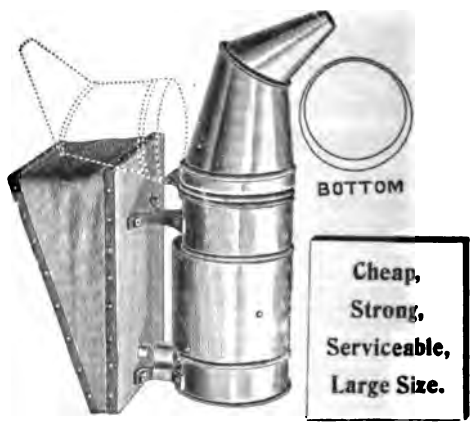

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

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Amityville, N. Y., Oct. 15.

Price $1.10, postpaid, or 85c if sent by express or freight with other goods.

THE A. I. ROOT COMPANY,

MEDINA, OHIO.

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VOL. XXIV. APRIL 15. 1896. NO. 8.

GLEANINGS IN BEE CULTURE

A JOURNAL · DEVOTED · TO BEES · HONEY · AND HOME · INTERESTS ·

The A. I. ROOT CO.
MEDINA · OHIO ·

MURRAY-HEISS CLEVELAND O

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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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Our facilities for doing all kinds of honey-label work in one or more colors are the best, and we can do it cheap. Send for our special label catalog of samples, free on application.

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

Vol. XXIV. APR. 15, 1896. No. 8.

STRAY STRAWS

FROM DR. C. C. MILLER.

MY BEES were taken out of cellar in fine shape March 30. Only 2 dead out of 157; but a lot more may die before June.

THE BRITISH B. K. A. has done the nice thing by electing Prof. Cook an honorary member in place of the late Rev. L. L. Langstroth.

TOTAL SUGAR consumed in U. S. in '95, 3,899,488,000 lbs.—just about 60 lbs. for every man, woman, and child. Wouldn't the nation be stronger if one pound out of ten had been honey?

NOT LONG AGO the *American Bee Journal* had an adv't of a man seeking a wife. *Centralblatt* beats that with the adv't of a dowerless maiden of 20 desiring a husband. York's man might open negotiations with the dowerless maiden.

BROOD-FRAMES filled with foundation usually have a space of ¼-inch left at the sides. Is that desirable when the frames are wired? I have a lot of combs built on foundation that touched the end-bars, and it seems to work perfectly.

THE METRIC SYSTEM stands a chance, just now, of becoming compulsory in 1897. What a fine thing it would be to have our complicated system of weights and measures replaced by the simple decimal system that we use in counting money! I'd like to live in 1897.

METAL BEADS on nails for spacers, as talked about by "the old Scotchman," p. 264, are among the things I've thought about, but I don't know where to get the right kind of beads. But I'd like best a nail with the right kind of a head.

THE WELLS SYSTEM of working two queens in one hive is not suited to novices in bee-keeping, says the *British Bee Journal*. Richard Brown, in that journal, says the system is not intended for strong colonies, but two weak colonies must be worked together.

VERY LIKELY Wm. G. Hewes is right in thinking "black combs darken the honey;" but I think he's too sweeping in saying "we all know" it. I think many insist that black combs don't affect the color of the honey, and there's been a good bit of discussion about it lately in *British Bee Journal*.

THERE'S A COG slipped somewhere on page 252, in C. H. Clayton's $11.25 for 19 combs at 75 cts. each. Guess he or the printer got it 19 instead of 15. But, say! isn't 75 cts. apiece rather steep for drawn combs, especially with bees only 50 cents a pound at the beginning of the season? If I could trade 2 combs for 3 pounds of bees, I'd skin every last comb out of my hives. [That's the way it was written.—ED.]

A REVERSIBLE FRAME is given in *Revue Internationale*. The top-bar is no longer than the frame. Into each of the four corners is screwed a common right-angled hook. For the part intended to be uppermost, the hooks at each end are turned outward to support the frame, while the lower hooks are turned inward so as to be entirely out of the way. [This idea is illustrated in the back volumes of GLEANINGS.—ED.]

LOW RAILROAD RATES are of first importance for a good attendance at the North American, and I've always said the only way was to have it where and when low rates were already secured for some other purpose. By all means try following the Grand Army, and some time it will go to Nebraska. [Yes, I'd like to have it follow the Grand Army this year; but the Nebraska bee-keepers "kick." Too bad they won't give *in*. Perhaps they will, though, yet. —ED.]

NO HONEY IN ROSES.—Roses do not secrete honey in their flowers. Insects are simply attracted by the perfume and rich colors, and by the abundant supply of pollen, which serves as food.—*Los Angeles Express*. Wonder if there isn't some mistake about that. I do know that in times of severe scarcity I've had many a rose ruined by the bees tearing the buds open, and that would hardly be for pollen. But most years the bees never touch the cultivated roses.

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[Dr. Miller is a great lover of roses. He grows lots of them around his place, and in all probability he is nearer the truth than the *Express*. —ED.]

MR. EDITOR, on p. 261 you grant the addition of a chemical to prevent granulation would not be adulteration if the chemical were expensive and not much of it used. Don't you grant any thing of the kind. The addition of a pound of chemical at $100 a pound to a ton of honey would be adulteration, providing that addition *injures the quality of the honey*. But then, there isn't much danger of that sort of adulteration. [Yes, if it injures the honey; but, as you intimate, the chemical probably will never be found.—ED.]

CANADA is crowing over California anent adulteration laws. The California law prohibits any thing but "the natural product of the bee," and *Canadian Bee Journal* says that legalizes glucose honey or any thing the bees will store. The Canadian law (in prospect) prohibits any thing produced from "substances other than those which bees gather from natural sources." Skylark hurrahs for Canada. I confess I don't see such an immense chasm between "the natural product of the bee" and what they "gather from natural sources."

WHOLE-WHEAT FLOUR is a grand thing, but altogether too expensive. Costs 4 cts. a pound in Marengo. Chance for some philanthropic work "along this line," Bro. Root. [Why, bless your heart, doctor, the philanthropic work is already done—see page 270 of our last issue. You can surely buy wheat in Marengo at not much more than a cent a pound; then with a hand-mill of almost any kind you can make big wages by grinding your own whole-wheat flour. A large-sized hand coffee-mill, such as you see at almost any grocery, makes this flour: and some of the friends tell us that the Wilson bone-mills do tiptop. I suppose you have that wind-mill by this time that I so strongly insisted upon, on the summit of that hill, and that should do the grinding. If you do not like that way, use the brake-stock you mentioned in our last issue.—A. I. R.]

I CALL THE EDITOR to order. On p. 268 he says clover or linden extracted ought to bring 8 to 9 cts. The highest quotations, page 245, leaving out California, make an average of only 7 cts.; and when commission, etc., are counted out, 5 will be a good deal nearer the mark than 8, to compare with his 4-cent syrup. [You seem to assume that I had reference to *extracted* honey; but if you will refer to page 69 again you will see that I said only "honey." However, that matters little, for I meant extracted; but the argument I used would have been more forcible had I used the word comb; and then the margin of profit between syrup at 4 cts. and comb honey at 12 and 16 cts. would be considerably greater. While my price—8 to 9 cents—is perhaps a cent too high, yours is too low. You figure the current price as quoted in our last issue. I was figuring on the usual current price that holds just as the first clover and basswood honey is put on the market; because, by the Boardman plan, one can get honey on to the market a week sooner than by the old plan; and the first honey on the old market always brings a considerably higher price than that which comes a week or two later. And another thing, you know I have been an advocate of selling honey around home, and thus doing away with the great loss in commission, freight, leakage, etc. While it costs something to sell at home, higher prices may usually be obtained for all that. Taking it all in all, I do not think I was so very far out. In fact, I did not make my point nearly as strong as I might have done if I had referred to the bee-keeper's profit between syrup at 4 cts. and *comb* honey at 12.—ED.]

WATER-WHITE HONEY is talked about, even in the columns of market quotations; but, really, is there such a thing as water-white honey? Better be honest and call things by their right names. ["Water white" is a common form of exaggeration, so common in the English language. For instance, when a horse dashes by, it is "going like lightning." When it is raining pretty hard, "it pours;" when a room is a little colder than 70° F., "it is freezing," and when honey is lighter in color than the average basswood or clover of the East, the Californians, naturally enough, say it is "water white." They have used this term to us a good many times, but we have never considered it literal. Whenever they have thus designated their sage we knew they meant best quality light honey, and no confusion ever resulted, so far as we were concerned. But nevertheless the term is slightly misleading, and *might* sometimes cause dissatisfaction with certain buyers. Granting that it is defective, what other term would you use? If you simply say "white," or "light," it would mean that the honey was no lighter than clover or basswood, which is not true. Here in the East, in speaking of clover and basswood honeys, we define them as white honeys, when, in fact, we do not strictly mean that. We speak of the white man, the yellow man, the red man. The adjectives are not strictly accurate, and yet they are accepted and properly understood. Commission merchants and honey-buyers all over the country define clover and basswood as "white." No one, however, thinks this is an exaggeration; and the term "water white" for sage honey, which is still whiter than clover, is not more of an exaggeration, surely. The fact of the matter is, the terms "water white" and "white" are accepted, and it would be a hard matter to change, even if they *are* wrong.—ED.]

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ON THE WAR PATH, IN GRIEF AND TEARS.

O Hasty, Hasty! when I first took you in charge I thought you would turn out a better boy; but you have altogether disappointed my expectations and wrecked all my hopes. I see by *Review*, page 57, that you still talk about the adulteration business in Los Angeles, Cal.

First, it was "inside views and exact facts." But now, taking your own account of friend Dayton's explanation, he admits that "his language was rather loose—the printer did not punctuate right; his mind was rather dwelling on bad years when there was no honey in the mountains—flying rumors that he was willing to indorse to the extent of publishing them." This is as fair and complete a backdown as we want. But friend Hasty is still not satisfied. He *must* have adulteration in Los Angeles. Glucose is only 2½ cents per pound there, so it is only 1½ cents in Richards, Ohio. Does that prove that friend Hasty, or anybody else, is turning out thousands of cases of adulterated honey in that place?

APIS DORSATA.

On page 84 of *Progressive Bee-keeper* is an open letter from the Ontario County Bee-keepers' Association, to the fraternity in the United States, the pith of which is as follows:

Fellow Bee-keepers:—We have prepared for circulation a petition asking the Secretary of Agriculture of the United States to take steps to secure and introduce *Apis dorsata*, the giant bee of India, into this country. It is a duty that the government owes and is willing to render our industry. (See Report of Secretary of Agriculture, 1893, page 25.)

Owing to the rapid disappearance of the bumble-bee, the introduction of these bees will soon be a necessity in the successful growing of red clover for seed, if for no other purpose.

Now, Mr. Editor, I don't always kick; in fact, I don't kick at all unless I am mad. I hate to see people who are always picking flaws in the conduct and the writings of others. We are all poor weak mortals, and liable to commit mistakes—that is, the most of us—particularly you fellows on the eastern side of the Rocky Mountains. But I don't kick now, because this move pleases me. This very thing should have been done years ago. The government has been standing ready to help us while we have been waiting and watching for *Apis dorsata* to fly over here of her own accord. It only needs that the petitions be poured in by the hundreds to get all the assistance we want. It is likely that the bee-keepers will be consulted as to the proper person to send on this important mission. He should be a man of great scientific attainments, of unlimited knowledge, of splendid administrative and executive abilities—quick to see and prompt to act, with a perseverance that never tires, and is satisfied only with complete success. He should have also a munificent salary. This is the only way to get the best and ablest talent. I could be ready to start by the first of July next.

We have here in California, at the present writing, a first-class chance for a poor honey season. That is the prospect now. It is not yet too late for rain, but it is almost too late for the downpour that we need to make a good honey crop. Now, don't you fellows jump up and clap your hands. It is not too late, and it is not impossible, for several good rains to fall which would amount to an awful big one. Don't get out your banners and go on a torch-light procession for six weeks yet. We have the climate here—have it in such quantities that we can retail it by the single yard or sell it by the thousand pounds; and don't you suppose we can have a little rain?

The American Bee-keeper, page 64, has this editorial:

It is a noticeable fact that there have been no new bee-papers started this year. This has not happened before in several years, and is an indication of "hard times" among bee-keepers.

Not so fast, Mr. Editor. How do you like the following?

Born, in the city of Los Angeles, Cal., January 1, 1896, the *Pacific Bee Journal*. The child is bright, strong, healthy, wide-awake, and full of fun. He can knock the stuffin' out of any thing of his size and age in the United States.

I see that Thos. G. Newman and wife are coming to San Diego to reside, as I understand it, permanently. Mr. Newman will be very cordially received and heartily welcomed by the bee-keepers of California.

How is it that, as soon as any of you fellows get smart, and become a blessing and a joy to society, you at once emigrate and strike for the Pacific shore? Here are Skylark, Prof. Cook, Rambler, and Newman—four stars of the first magnitude—visible only on the Pacific slope.

HEAT AND HONEY.

By Hon. R. L. Taylor.

HONEY OF DIFFERENT SOURCES; HONEY AND WAX TOGETHER; EFFECT OF THE RECEPTACLE; INTERESTING AND VALUABLE EXPERIMENTS.

Editor Gleanings:—The two samples of candied extracted honey, viz., one from alfalfa and one from great willow-herb, were duly received. Last week I made as careful a trial as I could to determine the effect of heat upon them, using also a sample of my own in connection

with them. This sample of my own was, I judge, mostly all basswood honey, and was in comb cut from partly filled sections of 1894. The comb was, of course, clean, and as white as comb made from foundation usually is. If there was any admixture of other honey with that in the comb it was, in all probability, that from white and alsike clovers. This trial was made with the honey in tin vessels, while it will be remembered that, in the former test, an earthen vessel was used for holding the honey.

The results of the present experiment *seem* to indicate the three facts; viz., that honeys from different sources are differently affected by heat, owing, probably, to the difference in the character and amount of the acids they contain; that honey heated with the wax of virgin comb containing it is not affected thereby, and that the composition of the vessel holding the honey may have something to do with hastening or retarding injury; for instance, in an earthen vessel the heated particles of honey in contact with the side of the vessel may not move so readily to change places with those of a lower temperature as in a burnished metal vessel, or it may be that the heat is conveyed more intensely by earthenware. The evidence on these points will appear from the results of the experiment, which I now give.

Alfalfa honey is peculiar, if the sample you sent is a fair one, in that it does not readily become limpid on being melted. On that account I thought when it reached a temperature of 145° that it had not dissolved, in which notion I was probably mistaken, for it was still cloudy at 180°. At 194° it had become tolerably clear, but very much discolored, so that it was of an amber color, almost brown. I could not judge from the present sample, but I suppose its natural color is about like that of honey from the great willow-herb, almost water-white. At 145° the color of the honey from the latter plant was but slightly removed from that of water, while that of the honey from the comb had a golden tinge. Of both these, samples were taken at 168, 180, and 194°. From 145 to 168°, and from 168 to 180°, the change in both cases was equal and slight, being barely discernible; but from 180 to 194° the change was very marked in the willow-herb sample, while it was comparatively slight in the other, so at this highest temperature the color of the former was very slightly darker than that of the latter, though it lacked much of being as dark as that of the alfalfa honey, being golden rather than brown.

In the case of the comb sample, the wax was retained in the melting-vessel throughout the experiment; nevertheless, the change in color was decidedly less rapid than in that used in my former experiment; and it is upon this fact that I base my opinion that the character of the vessel used has something to do with the change in color and flavor. In these two samples at 180°, the change in taste was slight—hardly distinguishable; but at 194° it was quite evident.

The time used in the process was about six hours. I suspect a more rapid heating after 145° is reached might give a more favorable result. Comments are in order.

I used the word "harrowed" (see your remark, page 227) altogether impersonally, and with reference to mistakes, not "flings." Don't mistake me: I have a lively appreciation of your comments and criticisms, favorable or otherwise—only let not the fact that I criticise in return be taken as a proof that I am sore or harbor hard feelings.

In his Straw, page 204, Dr. Miller intimates that there has been a scarcity of fish at our house; but since he therein fails to distinguish between "almost" and "altogether," and between "couldn't be" and isn't, and since he differs so widely from you and me in his count of surplus-preferences, will you please convey to him my commiseration on account of the fact that he does not live up here near the lake, where we always have fish in plenty? Fight fair, brethren. R. L. TAYLOR.

Lapeer, Mich., March 26.

[At Mr. Taylor's request I sent him a couple of samples of honey. The willow-herb is the whitest honey we know of, and it comes as near being literally "water white" as any honey in the world. This honey I thought would be especially favorable for testing the effect of heat on the *color*.

The other sample—the alfalfa—is a very delicately *flavored* honey, and the least change, I think, would be detected by the taste.

The results secured are very gratifying. As I understand it, they neither disprove Mr. Taylor's former honey heating experiments nor the statement I made, to the effect that clover honey raised to a temperature of 180 degrees, and sealed while hot to prevent candying, is injured in flavor; but it is evident that the 180 mark is about the limit. If Mr. Taylor is right (and I presume he is), the natural inference is that a thermometer should always be used in connection with the heating of honey (to prevent candying), so as to be sure not to raise the temperature above 180 degrees; for beyond that point the value of the honey may be affected adversely by a cent or two a pound.—ED.]

CULTIVATING SWEET CLOVER.

WHERE IT WILL AND WILL NOT GROW; A SEASONABLE ARTICLE.

By H. R. Boardman.

Yes, I am sure I can give a few hints in regard to the cultivation of sweet clover, that will be valuable to those who propose to sow it. I have studied its habits for a good many years. Almost every one falls into the fatal mistake of supposing it will catch and grow anywhere, with no further trouble than scattering a few seeds. The requirements for success are, a thoroughly underdrained or deeply drained

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soil. It will not grow with its feet in the water. Like the alfalfa, to which it is nearly related, it will not succeed in a soil that is water-soaked during the winter, and this is about the only condition under which it will not thrive.

It will grow and thrive on any and every kind of soil, and it is not much matter how poor it is; but it must be perfectly drained to a considerable depth. It is abundant in my locality, and I will tell you where it grows—along the roadsides, and especially where the road has been piked up, leaving deep ditches at the side; on the banks of large ditches along railroad embankments, and along the streams. The Huron and Vermillion Rivers have great quantities growing along their banks, and on the bottom lands. You will observe these localities all furnish a good depth of well-drained soil. It is the important requirement, in my estimation, for its success. Do not try to raise it on soil that has not this condition, or you will certainly meet with disappointment. Humor its preference and you will be rewarded with success.

During last summer I made several trips along the Vermillion River, in pursuit of my favorite amusement—trolling for black bass. I kept one eye on the white patches of sweet clover swarming with bees, that I found in great abundance for a distance of more than 20 miles. "Oh!" I said, "if I could raise such crops of sweet clover it would be worth money for the honey alone." But I have no land that is so perfectly adapted to it as that along the river. But I remembered this crop when the seed was ripe, and availed myself of the privilege of harvesting some of it, which the owners of the land granted freely. Hundreds of bushels of this seed each year falls off, and is washed down the river, to seed and reseed the banks and bottom lands clear to the lake, and undoubtedly along the lake shore for no one can tell how far.

I made up my mind that this big crop had come to stay. I have sown sweet clover several times on this kind of land, upon which it will not grow, and I shall not waste any more time in that way. I think I give good advice to others when I say, "Don't sow it unless your soil is adapted to it."

For field culture I would sow sufficient seed to get a good liberal catch, and not sow more land than I could and do this. Half a bushel to the acre of the unhulled seed is not too much. The spring of the year I think the best time to sow it. It will make a good catch on winter wheat or rye ground, but I think I should prefer to harrow or cultivate it in deep with a light crop of oats.

I will not take time to try to show the value of this plant. I am sure it is being rapidly recognized.

East Townsend, O.

CO-OPERATION IN THE HOME MARKET, VS. PEDDLING.

PEDDLING NOT DISREPUTABLE BUT DISAGREEABLE; FIGHTING COMBINES WITH COMBINES.

By F. L. Thompson.

On reading the peddling articles in March 15th GLEANINGS, with the one on page 137, also some replies to Query 7, in the *American Bee Journal*,

A feeling of sadness came o'er me
That my soul could not resist.

Is it possible that any man or collection of men really believes that, to agitate peddling, will make the skies grow bright again? Of course, it's a good thing. But think of the tons of energy scattered if we lean very hard on individual peddling; and then think of what might be done by merely applying the same dead weight to the home market in a co-operative way. The most emphatic advocate of correct peddling knows very well that, if the subject were agitated *ad nauseam* in the bee-papers, with bushels of articles as full of hard sense as a brickbat is of grit, that only a small proportion of bee-keepers would follow their instruction, or have any inclination to. Let's think of what may be done, instead of what ought to be but won't be. The competition of cheap honey from those bee-keepers who won't peddle will remain, and flourish with unabated vigor, unless we look elsewhere for a remedy.

Peddling is not "disreputable." That isn't it. But it is intensely disagreeable to perhaps nine-tenths of ordinary mortals who have not a barrel of tact on tap. Most men like to have some sort of pride in their work. If they can not, they prefer to forego the additional profit, or do something else—*and they have a right to do so.* That horn-blowing, chewing the rag, etc., is all right. I have nothing against it; only if I am to be called a fool for not selling my honey that way, I vigorously protest. I believe that, when a bee-keeper has worked faithfully to secure all the honey the bees can give, and put it up in good shape, he is entitled to the best market price for it, and that for a few smart fellows with the gift of gab to haul him over the coals for not being as flip as they are is not right.

I have tried peddling. It was not a failure. I sold over 500 lbs. of extracted honey that way, mostly in pint packages. Notwithstanding such unbusinesslike methods as believing a woman when she said she didn't want any honey, making no remarks about pet birds, etc., I made fair wages, considering the time I put on it, and could do so again. But I *won't*—you hear me? I might give reasons, and good ones, for my determination; but that is not the point. I simply made up my mind that life was too short to employ it in any other way than in doing my best, and that I clearly was not doing

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my best. Why should a man's hands be all thumbs when his other fingers are in healthy condition? I now employ my winters in other ways; and, while a loser financially, perhaps, I am so much a gainer in other ways that there is no comparison. No peddling for me.

Incidentally I might mention that I found selling in ten-pound or gallon buckets was more profitable than fussing with small packages, and that the vessel should always go with the honey.

Real peddlers are few in number. Is it not possible, not in theory, but really, to utilize peddling abilities for the good of us all? In Denver there are about five salesmen of honey. One is enough. Mrs. Heater, in the *American Bee Journal*, says producers should counsel together instead of underselling each other. That is the way to talk. But only four out of the twenty-four counselors talk that way. What is the matter? I think I know. It is vagueness. People haven't thought enough, or, rather, have thought too vastly to start with. First of all, somebody suggests a National Honey Exchange in Chicago. Of course, the wiseacres will shake their heads. Still, it is all right, and it may come soon, for all I know; but co-operation, like charity, begins at home. Here we have been talking all these years about developing a home market; and when co-operation is suggested, the first thing we do is to apply it somewhere else. If only three or four honey-producers in each State get together, employing one salesman for their own State, the objects to be achieved are those which every one sees *can* be achieved; and don't you suppose it will spread? There is no need of doing any thing wonderful to begin with.

In this connection a suggestion in one of Mr. Aikin's articles ought to be seriously considered. The salesman of such a company would stand some show of introducing the original cheap tin package of which Mr. Aikin speaks; especially if such a package bore the registered label of a bee-keepers' company, guaranteeing its purity; and if the salesman would also be competent to receive the honey in bulk, and himself put it up, it would be a *uniform*, standard article. If the package were a soldered round can, just like a tomato-can, with directions for liquefying, like those for treating canned peas, etc., the consumer would never see the honey candied. Moreover, the general adoption of this plan would be one of the very best methods of combating adulteration. These suggestions were made by Mr. H. Rauchfuss, at a recent meeting of the Denver Bee-keepers' Association.

One of our bee-keepers (Mr. V. Devinny) said lately, "You can't convince the people, but you can convince the merchant." This is an important point. I am not so sure that individual peddling, even if greatly increased, would come anywhere near the weighty influence of the accredited salesman of a standard article with grocers only. The consumption of honey in Denver has increased wonderfully in the last six years, simply by the effort of salesmen to supply the grocers; and nothing would prevent such a salesman from also giving away samples to the general public.

Mr. Doolittle says that legislation should be in favor of the producers of wealth, instead of trusts, combines, and monopolies—which at once suggests that the quickest way out is for the producers themselves to form combines. Mr. Demaree, over a year ago, spoke of unions, trusts, combines, and societies as if they were going to be responsible for a cataclysm, and now has nothing further to suggest than individual effort in the home market. Combines and trusts against single-handed honesty are certainly—oh! not to to be borne; but just consider what Prof. Cook says of the Citrus Exchange: "The exchange is a powerful organization, and is interested in low freight rates, as the commission men never could be, and is able to secure, not what the traffic will bear, but what is just." I'm waiting for some one to prove it is wrong to fight fire with fire, in this line. Are the "plutocrats" ever going to stop forming combines? No. Then what are you going to do about it? Legislate? But the combines have complete control of law-making—the most important part of that is lobbying and influence.

Mr. Abbott advises "pluck, energy, push, keenness of perception, and a feeling that you are able to take care of yourself without any help from the law or your neighbors, provided you are *let alone*"—a weak body with a mighty voice, in my opinion. With a synonym book and a little reflection, I believe I could beat that. Keenness of perception, hey? Humph! Here am I, after working hard all season, with my honey in attractive packages, ringing the door-bell of a city house. The door opens, and I go through my formula. "Is the honey fresh?" (!) "Bees make honey only in the summer, and—" I start in to say stammeringly, and bang goes the door. Not until the next day do I happen to think of a form of words that might have arrested that woman's attention, and, ten to one, in the next contingency, forgot to apply it. Yes, keenness of perception is necessary; but for mercy's sake let us use the material at hand in our ranks, not buttonhole each individual, and sing, "Be keen and you will be successful." Now, will Mr. Abbott say that I do not deserve a good price as well as the fellow who works no harder, and *no more intelligently*, come right down to it (I know what ought to be done, if I could only think of it soon enough) than I do?

How would it do to furnish each soldier of an army with a copy of Mr. Abbott's instructions,

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then say, "There, you don't need any officers—go ahead, you'll win the battle"? And, for that matter, of what use are incorporated companies or firms of any kind? "A feeling that you are able to take care of yourself without help." Mr. Doolittle, take courage. Plutocracy will vanish like morning mist if you only become inspired with a certain "feeling."

Arvada, Col., March 21.

SUPPLYING THE HOME MARKET.

HOW TO SELL TO GROCERS.

By F. A. Snell.

I have found it of greater value to sell in my own and adjoining towns than to ship to the large cities. A certain amount of tact must be possessed by the honey-producer to make a good salesman. If one is a good bee-keeper and also a good salesman he is fortunate in that respect. I have tried to keep the grocers of my own town supplied with honey so long as I have had any to sell. It is not so easy to sell where one is not known in other towns. In going to such places I always take along a buggy load. I drive up in front of the groceries and hitch my horse and then call on the grocers, always trying to be as pleasant as I am capable of being. I greet one with a "good-morning," which is pleasantly returned, as a rule. If he is at leisure I make myself and business known, telling him that I have some honey with me which I should be glad to show him. He is generally willing to look at it. I take a crate or case from the buggy and show it to him. The case is neat, glassed on both sides, tight cover, sections clean. The combs are looked over. I show him how nicely it may be handled and wrapped up. The honey pleases him, and he thinks it will his customers, so I am able to sell him two or three cases. Settlement is made. I thank him for his patronage, and ask that, if more is wanted, that I have the chance to supply him.

I then pass to the next dealer. I bid him a good-morning. Perhaps he is busy. I wait until he is at liberty. I then make my errand known, giving my name and residence, and state that I have some honey with me that I should like to have him look at. The case of honey is placed in as good a position as is at hand for inspection. He is pleased with its appearance through the clean bright glass. I remove the cover and take out and show him a few of the boxes. He remarks, "The honey is fine; but as you see"—he shows me a lot of honey in dirty boxes—"I have a good deal on hand." I reason that, while he is waiting to sell this, he might be able to sell quite a lot of the nice honey at a better price, and perhaps lose the sale to those of finer tastes. He decides by not taking my honey, however; that the other had better go, and that he will not invest in any more just now. I want his trade, and have faith in my honey, so I offer to leave him two cases to sell on commission, as I know he is reliable. He consents. The honey to be paid for when sold.

The third grocer is visited, where I proceed about as before stated. The honey suits him, and he takes only one case, as he is a little afraid he can not sell it so as to make a profit to suit him. I am well suited, as I am confident he will have no trouble, and I have made a start that I hope may prove of value in the future, for I try to please, give good weight, and put the honey in the cases so its outside appearance will not be deceptive, or, in other words, the finest I do not place next to the glass, with that not quite so nice in the middle, or where it will not be so readily seen. If one is so unjust as to try to deceive, he will find later on that he is the one most deceived; and, if a honey-producer, he will find his trade or sales much injured or his customers few.

Milledgeville, Ill.

SELLING HONEY AT LOCAL FAIRS.

THE VALUE OF THE $1000 REWARD CARD.

By F. W. Humphrey.

I have had considerable experience in peddling comb honey and in selling at our local fair. Four years ago I made an exhibit of hives and tools, bees and honey, at our county fair. There was a good deal of talk about "manufactured comb honey," especially when the comb foundation was examined. I tacked up some of A. I. Root's reward cards, and found them a great help in convincing people that my honey was "bees'" honey; but it was weary work to stand there all day and assure people, who thought they knew more about my business than I did, that artificial comb honey was a myth. A motherly old lady stopped at my stand one day and asked the usual question, "Is this manufactured honey or bees' honey?" I replied that it was bees' honey, and that there was no such thing as artificial comb honey. "Oh! but there is, you know, lots of it; they make it by machinery." I saw that she was a hopeless case, and said no more, only asking her to read the "$1000 reward" card I handed her.

I have sold honey at every fair held on those grounds since, and find that the belief in artificial comb has died out to a great extent—partly, I think, owing to the persistent preaching by myself, and other exhibitors, of the doctrine of pure comb honey.

My sales have increased from a few pounds the first year to several cases at the last fair. Those who buy once come again. I have sold 1000 pounds in this vicinity since the honey-flow

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stopped last fall, the largest sale being six 12-lb. cases. The rest has been peddled or sold to the local grocery trade in 12-lb cases.

The most profitable trade has been in unfinished sections, two for 25 cts. These have gone like hot cakes on a cold morning.

Peddling honey, like other business, has its unpleasant side; but when people find that you are selling good honey at a fair price they will buy of you much sooner than from a grocery.

Some of my best customers are from the city (Bridgeport). They drive out to the apiary and buy several pounds at a time.

The fraud-killer of GLEANINGS should get after the *Youth's Companion*. They are advertising Electropoise.

Oronoque, Ct., Mar. 24.

VEXATIONS OF THE MIDDLEMAN.

TROUBLES OF THE COMMISSION MEN, FROM A COMMISSION MAN'S STANDPOINT.

By C. F. Muth.

There is nothing more natural for farmers, bee-keepers, and producers in general, than to endeavor to get the top of the market for their products. As a rule, producers work hard; and the extremely low prices prevailing during the late years have caused sore disappointments to all, but not to producers only. Good prices, a good demand, and satisfactory margins, go generally together, and the reverse is the case in adverse times. We are always ready to take the producer's part, for the very reason that most of us are, more or less, in the same boat. But self-interest often makes us judge others harshly and unjustly. To prove this I will cite two cases in my experience of last winter, even if some of our friends will take sides against the middleman.

Comb honey was in very good demand with us last fall. We sold considerable. The honey crop having been an entire failure in Southern Ohio, Kentucky, and Indiana, we received our supplies from Northern Ohio, Michigan, Pennsylvania, and New York. Quality was rather indifferent; but supplies were insufficient. We bid on a number of carloads of western honey, and received two carloads from California. We bought "choice white" only, but did not object to a small portion of each car being "No. 2." Our prices for the first car were 12 cts. per lb. for "choice white," and 10 cts. for "No. 2," f. o. b. Cincinnati. We advanced $850, and freight was about $650, and we agreed to remit the balance in 30 days after the arrival of the car.

A rough day on the farm keeps me in the house, and gives me a chance to write this article. If I don't give the exact figure in every instance you will have to make due allowance for my quoting from memory.

The car had been loaded poorly; vacant spaces had been left, which had given the cases a chance to slide and bump together during their journey. It required steady work for our own folks, and two extra men, for a week or more, to overhaul and repack the honey. All broken combs were assigned to the straining-bucket, as we could do nothing else than make strained honey out of it. Our friend was credited 5 cts. per lb. for his broken combs, which was 2 cts. more than we should offer were we to buy any. There were 300 to 450 cases of pretty nice honey in the car, not choice white, but a good salable article, while all the rest were of indifferent quality. We found, in the same cases, fair white and dark combs as well as very unsightly combs of different colors; old combs refilled, and many combs with granulated honey. I told my friend that about half of his honey should never have been shipped from California to Cincinnati. He is, no doubt, a good man, as his near relatives, who live near our city, are good people; but he had not personally superintended the packing of his cases, and he had not been careful in loading his car. I paid him 5, 7, 8 (or 10), and 12 cts. per lb. respectively, for his honey. My California friend could not believe my story to be true until his brothers called on us and were convinced of the facts.

The second car contained about 34,000 lbs. net of comb honey. We had agreed to pay 10 cts. for "choice white," and 8 cts. for No. 2, f. o. b. California (San Francisco, I believe). We advanced $2600, and paid freight, $475. All arrived in the best of order—not a comb broken; but, oh my! the quality—all yellow! His "choice white" was not even No. 3. The front rows, behind the glass fronts, looked pretty nice. They look nice yet, for only about a third of it is sold; but behind the front rows there is any kind of honey. We had shipped, before we were posted, a number of small lots, say 25 cases each, more or less, to Louisville, Indianapolis, Terre Haute, Fort Wayne, Toledo, and other places. All were returned to us excepting the lot from Louisville. A reduction of 1½ cts. per lb. induced the latter party to keep it. It seems that this honey had been put up to cheat. Since we are posted, we overhaul it all, and do the best we can with it, throwing the bad combs into the straining-buckets. According to the original statement, we owe this party about $800 yet, which we refuse to pay. We so stated to him, adding that we are sorry that it was not $1500 instead of $800, as we should certainly refuse to pay the larger sum, knowing that it would not cover our loss. I told him, furthermore, to send a friend to satisfy him of our statement's being correct, and that we would pay his fare both ways from any station this side of the Rockies if he should find my statement not true. That

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was several months ago, but we have heard nothing of him so far. The only excuse I have for this shipper is that he, perhaps, had bought the honey without having seen the contents of the cases.

You see, Bro. Root, this material loss is not the only one sustained by the dealer. We were deprived also of our usual trade of the season. We might have disposed of four or five carloads of honey since October had we not been deceived by shipments the like of which we had never bought; while now we must worry along, and shall consign to the rendering-tank about half a carload of comb honey, by the time that fly-time arrives, and then dispose of it at about half the price per pound we had paid for it. So, let us do justice, even to a dealer.

Cincinnati, O., April 4.

"OIL-CAN FRAUDS" IN CALIFORNIA.

HOW TO RENDER SECOND-HAND SQUARE CANS, IN WHICH OIL HAS BEEN SHIPPED, FIT FOR HONEY.

By Oil Can.

Mr. Editor:—On page 220 of GLEANINGS for March 15 I find an item entitled "Coal-oil Can Frauds," copied from the *American Bee Journal*, which strikes me very forcibly, and so I should like to ask a few questions for information. 1. What do new cans cost in the East? 2. Is the *American Bee Journal* interested in a can-factory? 3. Is not a good bright coal-oil can as good as any if thoroughly cleaned and deodorized? I think we must use coal-oil cans in this part of California, as long as we can get them, while new cans cost 29½ cts. apiece. The strongest argument in favor of new cans is that they do not have to be cleaned. Some men are slovenly about any thing they do, while others don't care so long as they can get their goods off their hands. This class should suffer, and not those who do their work thoroughly. In this warm climate it is an easy matter to make a coal-oil can as sweet as a rose. Perhaps you will not believe this unless I give the recipe for cleaning the can and removing the odor. It is this: Keep the cans prepared some two or three weeks ahead of the time they will be needed. To clean, first take off the oil-faucet; punch a small hole in one corner of the can; drain out all the oil that will run; expose in the sun for a few days the cans thus drained, then use hot water and gold-dust washing-powder thoroughly. Follow this by rinsing till clean, and again place in the hot sun. In a few days it will be impossible to perceive the scent of oil in them. Cans must be left open while taking their sun-bath, and the open end up, to give the evaporating water a chance to escape.

We need some cheaper method than we now have for putting up our extracted honey; but what shall it be? We have no honey-barrels on this coast — not to my knowledge, at least; and even if we had, they would not hold honey in this climate. Will some brother bee-keeper please arise and give us a few remarks "for the good of the order"?

Tulare, Cal.

[Mr. York is in no way interested in the sale of square cans; in fact, I do not believe he even knows what the cans can be bought for. It is true, we sell square cans; but the Californians generally buy direct of the factory. I presume his experience is a good deal like ours—that we have run across a good many instances in our correspondence where otherwise first-class California honey has been ruined, simply because the Coast bee-keepers put it into cans that had been used for oil. In some instances they made an effort to clean the oil out; but nevertheless the honey was tainted. California honey has been getting a bad reputation in some quarters, just because of this carelessness (or perhaps we might call it slipshodness) on the part of a few who either ought to quit the business or else use new cans, if they can not or will not succeed in making their old coal-oil cans clean and sweet.

It is true, that second-hand oil-cans may be bought cheaply; but when we come to figure the fuss of cleaning them up, and the risk of not getting them clean, I am very much of the opinion that they will not be found any cheaper than new cans, especially when bought in car lots by bee-keepers clubbing together. But now since the Exchange has come into existence, every member of it can buy at carload rates.

But there is one thing that you evidently do not count on; and that is, that dealers here are prejudiced against *any* California honey put up in *old oil-cans*, or old cans of any sort. We will suppose that they have been thoroughly cleaned, as you explain; but no amount of talk will convince these dealers, or some of them at least, that the honey is not affected. They regard the old cans with suspicion. On the other hand, if the bee-keeper will pay just a little more for *new* cans, the dealer will be willing to give him a good deal more for the honey there is in them.

But I am glad to get your ideas as to how to clean old cans; and if bee-keepers must use them — that is, can't get the new cans at the right figures—let them use the old ones, but follow implicitly your directions. I have no doubt that *you* can make the cans clean and sweet; but I am a little afraid that some bee-keepers will make a bungle of it. Let a few cans of this oily honey get in with a lot of good honey, and the whole will be condemned. Dealers will, on the slightest pretext, knock the price down, and California bee-keepers can not afford to take any chances.—ED.]

J. W. E., S. C.—It doesn't pay to keep bees in a greenhouse, so far as the bees are concerned. Years ago we tried the experiment most thoroughly. The bees learned after a fashion to go back and forth to the hive, but many were lost in bumping their heads against the glass, for the conditions in a greenhouse are so unnatural. Bees are often kept in greenhouses for the sake of fertilizing blossoms, and in this case they prove of great value. The loss of bees is of small importance compared with the proper fertilization of blossoms, especially where valuable flowering pot-plants are grown. Where the bees have all died off, another colony is put in.

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A LITTLE CALIFORNIA BEE BOTANY.

AN INTERESTING DESCRIPTION OF SOME IMPORTANT HONEY-PRODUCING FLOWERS.

By A. Norton.

Several California honey-producing plants of considerable importance are either entirely omitted or but merely mentioned in Prof. Cook's Guide, which has, however, given quite a comprehensive and very accurate account of the honey-flora of this State. Many of these plants are already in full bloom (Feb. 25), and have been blooming for three weeks; and they are furnishing plenty of business for the bees. The many species of California lilac (*Ceanothus*) are among the early bloomers. The typical species of this genus, *Ceanothus thyrsiflorus*, or true California lilac, is perhaps the most beautiful of all. It is a tall shrub or small tree from 6 to 15 feet high, with a graceful habit of branching, thick, oblong leaves about 1 to 1½ inches long, which are very glossy and shining above, and, in February and March, thickly sprinkled with clusters of beautiful bright-blue flowers. The shape and habit of the clusters are much that of the common lilac of Eastern dooryards; but the small flowers are entirely unlike those of the cultivated shrub, as is every other aspect and relationship of the ceanothus. It belongs to the buckthorn family. The flowers are very fragrant, varying in this respect with the species, and bees work on it very freely. The anthers, bearing much pollen, are borne on long slender filaments that protrude from between the curved back petals of the little florets; and the bees gather light-yellow pollen therefrom. Between 20 and 30 species are found on the Pacific slope. The species just described ranges from Monterey to Humboldt County. It is replaced in the Sierra Nevada Mountain region by two similar species, one with white and one with blue flowers. Other species are much more scrubby in growth, with smaller leaves; and they help largely to make up those peculiar impenetrable chaparral thickets (mixed with chamiso brush and chaparral oak) which are so characteristic of the California Coast Range.

a.a.a = Sepals of strongly incurved Calyx.
b.b.b. = Slender Petals, deep ladle-shaped, spreading between Sepals.
c.c.c = " " stamens, also coming out from between Sepals.
d.d.d = Three lobed style, & Little slemlet, Sepals, Stamens, in fact whole flower a delicate blue, excepting only the yellow anthers, or pollen-sacks.

Ceanothus Americanus is the "Jersey Tea" of Revolutionary fame found in New Jersey, etc.; and *C. ovalis*, found among dry rocky places from Vermont to Wisconsin, are the only eastern representatives.

The California species are mostly found from the central portion of the State to Oregon

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Washington, and Nevada. But a few species range southward, and I have found them among the Chaparral Mountains of Ventura County and elsewhere.

C. spinosus, the next to the most prominent species, occurs from Santa Barbara to Los Angeles, and is known by the local name of "redwood"—not the timber tree redwood—on account of its reaching the height of a small tree and producing a passably serviceable red-colored wood, which, however, is not much used. Like all the other species it has clusters of beautiful fragrant flowers, which are blue, as in all but a few with white flowers.

Two genera of the Heath family, *Arbutus*, or *madrono* (pronounced * mathrone'yo), and *Arctostaphyllos*, or manzanita (manzanee'ta), afford valuable bee pasturage in early spring. The former, in California, contains only *Arbutus Menziesii*, a relative of the strawberry tree of other countries, and the manzanitas are found in about a dozen species in mountain regions. The madroño is a beautiful tree 80 to 100 feet high among the Coast Range Mountains of Northern California; but it dwindles to a shrub in the southern portions of the range. It presents a fine appearance at all seasons, with its long glossy leaves and smooth, reddish-brown trunk and branches. One writer truly remarks that the madroño should be the Irishman's favorite tree, upholding as it does the green above the red. But when it has hung out its fragrant delicate white blossoms, in March and April, its beauty can not be excelled.

The madroño and the manzanitas bear their blossoms in clusters, each individual blossom being partly or wholly pendent, or drooping, from a slender pedicel; and, while the shape varies with the species, the flowers of all, in form and texture, are much like tiny porcelain lamp-shades, the opening of the flower corresponding to the narrow part of the shade.

These two genera are closely related to the huckleberry and cranberry. The madroño bears very sweet berries about the size of cherries; and, while some botanies describe them as "scarcely eatable," I have found quite delicious ones. The wood is very hard and of a pretty color, susceptible of high polish, and fine for fancy work. Madroño is found as a tree from the Santa Cruz Mountains to British Columbia, and as a shrub along the higher parts of the Coast Range, where the rainfall is more plentiful, clear down to Mexico.

Manzanita, in Spanish, means "little apple;" but the berries of most of the species are bony and tasteless. The wood is similar to that of madroño, as are the flowers. Most of the species range from Monterey northward; but *A. tomentosa* is found as far south as Santa Barbara; and *A. pungens*, with slightly acid fruit, eaten by bears and Indians, abounds in all mountain regions throughout the State. Bees work busily on all species. But as the various manzanita shrubs blossom in February and March, and the madroño in March and April, when bees are using most of what they gather in the rapid production of young bees, and when, in the regions where these plants thrive, rainy weather is very frequent, surplus honey is too rare from them to have acquired any market reputation. I have just sampled some (Feb. 27) that the bees have lately capped over in the brood-nest, recognizable by the fresh whiteness of the cappings on recently lengthened cells; and it is of a darker shade than sage honey, but without redness of tint, and has a mellow, pleasant flavor that many would like; but that would be less universally liked than sage, clover, or basswood honey. The trailing *Arct. uva ursi*, or bearberry, of

*The word "madroño" might be represented by the spelling *madhron-yo*, sounding the *a* as in *ah*, and the *o* as in the word *old*. Spanish *d* is pronounced by pushing the tip of the tongue slightly against the upper teeth instead of the roof of the mouth just above the upper teeth, as we do in English: it is also accompanied by a slight trill when r follows it.—ED.

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Nevada and the Eastern States, and *A. alpina*, found high up on the White Mountains; and from Katahdin northward, are the only eastern representatives.

Buckeye, or horse-chestnut, is represented here by one species, *Aesculus Californica*, found from San Luis Obispo Co., of Central California, to Mt. Shasta and the Oregon line. When black sage has gone out of bloom in May, buckeye is just ready to take its place; and an excellent extension of the honey harvest is thus afforded. The honey is inferior to that of sage, having an amber color and a flavor that, after reminding one of something familiar, seems finally to be suggestive slightly of cherry bark; yet it makes a palatable and very acceptable sweet where one can not get sage honey, and I have seen many kinds of honey not so good as this. In favorable seasons considerable harvests of it are obtained in the central coast region. It grows in sheltered localities on northern slopes of hills, mountains, and along the valleys, wherever it can find shaded and moist locations. Generally it is a dome-shaped shrub, 10 to 15 feet high; but in fertile stations it becomes a tree 30 to 40 feet high, branching very low, and often several feet in diameter near the ground. With its handsome leaves and large white flowers it has a cool refreshing look in summer; but it drops its leaves very early, and becomes a coarse-branched ungainly object till the following spring. Considering this species, I am led to wonder why I never hear of honey from *Aesculus glabra*, or fetid buckeye, of Ohio; *Ae. flava*, or sweet buckeye, of Virginia to Indiana, or *Ae. pavia*, or red buckeye, of Virginia, Kentucky, etc.

Poison oak, *Rhus diversiloba*, is much like poison-ivy, *R. toxicodendron* of the East, except in size. In wooded places it climbs the tallest trees in much the same way and with the same appearance at a distance as the Virginia creeper; and on open hillsides, etc., it is a bush growing in thickets from 2 to 6 feet high. Bees work very freely on it in early summer. The species abounds everywhere in the State, and causes much inconvenience to those who are poisoned by it, causing an itching rash and swellings. Others can handle it without the slightest harm. I have never seen what I knew to be poison-oak honey; but I have seen bees upon it freely season after season.

Among the valleys and mountains of Santa Cruz Co., and northern Monterey Co., where the rainfall is plentiful, tarweeds and "tuccolo'te" are so abundant as to contaminate the honey with their strong flavors. I have seen tarweed honey that was fairly eatable. But I once cut a bee-tree at the base of the Santa Cruz Mountains, among fields rank with the later plant, which is a *Centaurea*, related to the dooryard "bachelor's button," but with yellow flowers, and with the whole plant covered with spines, and presenting more the appearance of a thistle, which sometimes makes it almost impossible to bind grain by hand. The bee-tree was plentifully supplied with honey; but only a little of it was eatable, which, of course, was from other flowers. The most of it was of a greenish color, as if the green juice of leaves were mixed with it; and I would readily have believed that it would stop a chill and fever; for it had the taste of quinine. This bitterness of taste was so strong that all flavor of sweetness was completely disguised, and the taste clung in the mouth after eating—not long, like quinine, but still disagreeably.

Monterey, Cal., Feb. 28.

[These drawings were first submitted to friend Norton before being engraved, and were by him pronounced correct.—ED.]

UNITING BEES IN SPRING NOT PROFITABLE.

Question.—I have fifty colonies of bees which are hardly half what they should be at this time of the year. What shall I do to get the most comb honey and also a little increase?

Answer.—Some years ago I should have said, "Unite these weak colonies at once," the same as nearly all the books will tell you; but after an experience of over twenty years I say, leave each colony in its own hive till June; for where two or more colonies are so weak that they will not live till summer, if left in their own hive without reinforcing, they will not live through till summer if united, no matter if as many as half a dozen such colonies are put together; at least, such has been my experience and that of all those who have tried the same thing and reported in the matter. Deciding that it is not best to unite weak colonies in early spring, what shall be done with them so we can secure comb honey from them? After trying every thing recommended in our different books and papers, and not being pleased with any, I finally worked out the following after much study and practice: All colonies which are considered too weak to do good business alone are looked over, when pollen comes in freely from elm and soft maple, and each shut on as many combs as they have brood in, by means of a nicely adjusted division-board, seeing that each has the necessary amount of honey in these combs, or within easy reach, to last them at least two weeks; for if we would have brood-rearing go on rapidly at this time of the year the bees must not feel poor in honey. Such weak colonies can send only a few bees to the field for stores, even when the flowers yield nectar, should there be early flowers in our locality which do so; hence if we would

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make the most of our reduced colonies we must supply them with plenty of food. These colonies are to be kept shut up to these combs until they have filled them with brood clear down to the corners, before more combs are added; and in no case do we allow any more than one-half the number of combs used in our hives. As soon as the stronger of these have all the combs they can be allowed filled with brood, a frame having the most mature brood in is taken from them, and a comb quite well filled with honey set in its place, to stimulate them to greater activity and cause the queen to fill this comb immediately with eggs. If the honey is sealed, break the cappings of the cells by passing a knife flatwise over it, or by uncapping it with the honey-knife. The frame of mature brood is to be given to one of the next weaker of the weak colonies, or say one which lacks one frame of having the allowed number. Don't make the mistake which many do, of giving this frame of brood to one of the very weakest, hoping to get them ahead faster, for the weather has not yet become steadily warm enough so but that there is danger of losing the brood by chilling, as well as what brood these very weak colonies already have. By giving it to a colony nearly as strong as was the one from which it was taken, both are benefited, and both can furnish brood to another colony which was only a little weaker than the second, in a week or so. Thus we keep on working the brood from the very strongest down, step by step, as the bees advance and the season advances also, till by the time the weakest colony (one having, say, only two combs filled with brood by this time), can take brood enough, without danger of chilling, to make it of equal strength with all.

Having all with the allowed number of combs, we are now ready to unite, which should be done about two weeks before the honey harvest comes, that the best results may be obtained. To unite, go to No. 1 and look over the combs till you find the one the queen is on, when you will set it—queen, bees, and all—out of the hive, so as to make sure that you do not get the queen where you do not wish her, when you are to take the rest of the combs, bees and all, to hive No. 2, and, after spreading out the combs in this hive, set those brought from No. 1 in each alternate space made by spreading the combs in No. 2, and close the hive. In a week or so this colony will be ready for the sections; and if your experience is any thing like mine it will make a colony which will give as much comb honey as would the colony which you called your very best some years when your bees had wintered perfectly. In this way you will have half as many colonies in excellent condition to work in sections as you had weak colonies in the spring, and will secure a good yield of section honey; while, had you united them in early spring, or tried to work each one separately, little if any surplus would be the result, according to my experience. You will probably have all the swarms from these colonies which you will desire, for increase; but should you not, the comb with brood, bees, and queen, which are to be put back into hive No. 1, together with an empty comb and one partly filled with honey, can be built up to a fair-sized colony for wintering, or two such colonies can be united in the fall.

WHICH QUEEN GOES WITH THE FIRST, OR PRIME, SWARM?

Question.—Will you kindly let me know in GLEANINGS which queen leaves the hive with the first swarm—the old or the young one? I have been asked several times, but I am unable to answer.

Answer.—Unless, for some reason, the old queen, or the one which has laid the eggs which produce the bees that accompany the swarm, has become lost or killed, this old queen is the one which *always* accompanies the first swarm. In case the old queen gets killed just before the swarming season, then the bees will raise other queens from the larvæ hatching from her eggs, in which case a young queen may go with the first swarm; but, as I once said, such a swarm can not be considered a prime swarm. After reading this, Dr. Miller asked in Stray Straws why such a swarm was not a prime swarm, but I think I have never answered. A "prime" any thing is something obtained from its kind when it is in its best or normal condition; and as a first swarm with a virgin or young queen is not sent out under normal or the best conditions, it can not be called a prime swarm. Is this correct, doctor? If not, why not? As a rule, ninety-nine out of every hundred first swarms are accompanied by the old, or laying queen.

[The late editions of the A B C of Bee Culture do not recommend uniting in the spring—see "Wintering," on page 336. The earlier editions did so, and some of the bee-books do recommend the practice as you state; but I believe it is generally admitted that uniting in the spring one or more weak colonies does little or no good. —ED.]

CLOSED-END FRAMES.

PIGG'S METHOD OF FASTENING.

By J. M. Pigg.

I notice in GLEANINGS for March 1st a plan of hive by Mr. E. H. Gabus. Prior to seeing this I had gotten up one to modify the Aspinwall hive, and I think it also modifies the Gabus hive, because the frames are the same size as the L., inside. The cover is the same

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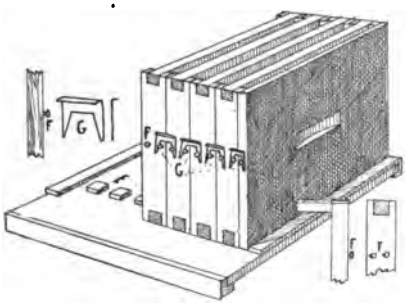
except being a little shorter. The bottom-board is the same as the old one, with the addition of the small blocks, E, put about 1½ or 2 inches back from the end of the frame for it to rest on. The staples, G, are made of $\frac{3}{32}$-in. x 1¼-inch hoop iron, and can be made very cheap where one is prepared for it.



Well, it is not necessary for me to explain all the working parts and advantages of this hive, because the sketch I send you will explain itself.

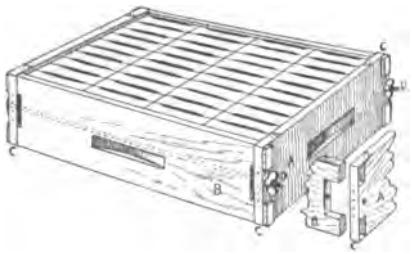
Shelbyville, Tex., March 10.

[I believe I should prefer Elwood's string (see page 178), because it would be cheaper and less work to handle.—ED.]

SAWYER'S COMPRESSION SECTION-SUPER.

By T. R. Sawyer.

I thought I would venture to send you a rough drawing of my section-case. This case I got up seven years ago, and I have some 200 of them in use. You will notice one end of the case is adjustable, and by those thumb-screws you can move up the end to compress the holders, sections, etc., solid. The end can be moved



off from the inside, and also from the outside. I usually move the end off about ¼ or ⅜ of an inch when I wish to examine the case to take out a bait section-holder or to see how far advanced the case is; but in warm weather, when the bee-glue is soft I separate the holders at any point with a screwdriver between two holders, giving a quarter turn that moves out the end of the case by a simple turn of the wrist. In filling the case with new sections, if the end strikes the joint, put in an extra separator at the opposite end. My section-frames and separators were made by Dr. Tinker, but the cases I made myself (as I am a mechanic). I have no machinery, but I got up an outfit to make them rapidly and correctly, so there was no fitting to be done when put together; and it is the best-working case that I have ever handled, in more ways than one; and the sections are as clean when taken out of the holders as though just out of the box; but, of course, it wants a form to take the sections out of the holders rapidly.

I have used for the last seven years almost altogether the white-poplar dovetailed open-side sections; and to work the open-side section satisfactorily they should be worked in a holder. It sometimes happens that bee-escapes are too slow, or too much work to put the escape-board on; and with open-side sections in holders we can brush the bees off a case in about no time We use a nine-frame L. hive.

Muscatine, Ia., March 10.

[Our artist failed to get the drawing just right. The sections should be shown running the other way of the case. Compression, if applied at all, should be on the *edges* or *sides* of the sections, the object being to close up the spaces or interstices where the bees have a tendency to propolize; and then, too, the tightening-rods should run along *grooves* in the end-boards, and not *holes*. The latter would be all right, but it would be impracticable to bore them. There is no doubt that such a case will compress, but it is much more expensive than a solid super with a follower and wedge, such as are ordinarily used.—ED.]

FLORIDA SINCE THE GREAT FREEZE OF 1895.

I must say a few words to our northern apiculturists through your columns. Florida, though disfigured, is still in the ring, and will stay there too. Here on the Indian River, in a few favored localities, are orange-trees that have borne a fair crop of fruit since the freeze of 1895; and those that were killed to the ground have since grown a small top, and are now putting on bloom, while our bees are now storing surplus, where colonies are strong, from pennyroyal; and weaker ones are building up to reap the rich harvest. The saw-palmetto promises to yield in May and June. All nature is alive and astir, for February, March, and April make our spring—the prettiest time of all the year in this latitude.

Grant, Fla., March 12. L. K. SMITH.

HONEY IN ERYSIPELAS.

[We copy the following from the *American Homeopathist:*—ED.]

Dr. Hayward, of Coopsey, Ill., calls attention to honey as a remedy for erysipelas. It is used locally by spreading on a suitable cloth and applying to the parts. The application is renewed every three or four hours. In all cases in which the remedy has been employed, entire relief from the pain followed immediately, and convalescence was brought about in three or four days.

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THE condition of our bees, so far as wintering up to the present date, is about as good as it can be. Only two have been lost. We have in the yard at present 185 colonies.

PERHAPS some of our friends who are using the Boardman feeder with Mason jars have found that the jars themselves vary somewhat in size—not enough, however, to make any practical difference. As the tops of the jars are tapering, some jars will go a little deeper into the holes than others. But that will make no practical difficulty.

IN this issue we have started the symposium feature again—the subject of disposing of our honey. It will be noticed that some are in favor of peddling, and some are not, while Mr. C. F. Muth sets forth some of the troubles of the commission men. I shall be glad to receive more articles on the general subject of selling honey, to commission men and around home, or peddling or selling at the grocery.

A COUPLE of mistakes appear in the setting of No. 1 of the Washington grading, page 267. The first word, "unsoiled," in the fourth line read originally "unsealed." This was correct. The next word just below it, "unsealed," was wrong. I knew it ought to be "unsoiled." But what should I do but go and correct the wrong word, and therefore made both wrong! The grading of No. 1 should be as follows:

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

WE are running extra hours in nearly all of our departments. Even though our prices are a trifle higher than those of some of our competitors, the quality of our goods seems to count as an important factor with this year's business. The new foundation is taking like hot cakes. Had we not made great enlargements last fall and summer, nearly doubling our horse-power, and in other ways adding to our capacity, we should not this season have been able to take care of the trade; but as it is, we are just able to keep up nicely and take care of all orders promptly.

THE SOLAR WAX-EXTRACTOR INDISPENSABLE.

THE question is often asked how to render up dirty bad-smelling combs — those that often contain dead larvæ; and as the question is asked so often, perhaps it would be well to give an answer right here.

To melt them in a wax-boiler on the stove would scent the whole house up; and, moreover, it would be an exceedingly disagreeable and filthy job. But, fortunately, the solar wax-extractor comes to our relief. Such combs can be put into this machine outdoors; and if there is any odor at all it is not noticed. The black and dirty wax is not only melted, but bleached to a certain extent. A bee-keeper nowadays who can not afford to have a solar wax-extractor can hardly afford to have a smoker, I was going to say. Why! with the help of old Sol it will save enough the first year, practically, to pay for itself, to say nothing at all of what it will earn in subsequent years, and of its great convenience, the avoidance of foul odors in the house, and the annoyance to the good wife.

THE NORTH AMERICAN AT LINCOLN OR MINNEAPOLIS.

IN our last issue, commenting on the change of location proposed by Bro. York we expressed ourselves as in favor of it, *providing* the Nebraska bee-keepers would not object; but it seems some of them do object. Here is a sample:

Dear Mr. Root:—I notice from a late issue of the *American Bee Journal* that friend York advocates the removal of the next meeting from Lincoln, Neb., to Minneapolis, Minn. We believe that as good rates can be got to Lincoln as to any place on earth, and that the difference in hotel rates at Minneapolis during the G. A. R. reunion will more than overbalance any advantages that may be gotten at Minneapolis. We believe that the next meeting of the North American was located at Lincoln in good faith, and that its removal from Lincoln at this time should not for a moment be thought of, much less advocated. We believe that Lincoln can and will show the visitors to this meeting such a sample of true Nebraska hospitality as has not been witnessed, not even in Kentucky, and they will return feeling that, at least for the time, Lincoln (and, in fact, the whole State of Nebraska) was theirs. I trust that your influence will be extended toward keeping good faith with Lincoln; and then if they or we fail we shall be the responsible parties.

Friend, Neb., March 30. E. WHITCOMB,
Pres. Nebraska Bee-keepers' Ass'n.

While we think it would be desirable to meet with the G. A. R., yet if the Nebraska bee-keepers are not willing we can not advocate the change. In the future it seems to me (i.e., E. R. R.) it would be better to leave time and place of meeting to the officers. If no promises are made the conventions can be held whenever and *wherever* special favoring conditions may suggest. Mr. Emerson T. Abbott also sent in a protest. In writing him I said we had indorsed the change of place conditionally upon the agreement of the Nebraska bee-keepers. Mr. Abbott replies:

My Dear Mr. Root:—I am with you for any point that will give us low rates all around, *if* the Nebraska friends are agreed. *Loyalty to them is the only thing I ask.*

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There is one point, however, which we should not neglect, and that is to know about a hall, and also what rates we would have to pay for hotel accommodations. If we should be forced on account of the crowd to put up with such an outfit as we had at Chicago, I for one would prefer to pay a little more, and be royally entertained, as we are sure to be at Lincoln. A man can afford to pay out a few dollars just to see how these good people up in Nebraska do things. I thought I did very well at St. Joseph, but I will miss my guess if they do not lay *our* meeting in the shade. You see, I know them —I have partaken of their hospitality a time or two.

St. Joseph, Mo., April 6. EMERSON T. ABBOTT.

Since the foregoing was written the following has appeared in the *American Bee Journal*, in answer to a similar letter in its columns from Mr. Whitcomb:

If Mr. W. will *guarantee* a one-and-one-third railroad rate to Lincoln for those attending the bee-keepers' convention, we will pitch right in and "whoop her up" for the Nebraska city. But we can not, as in former years, urge bee-keepers to attend, expecting to get the lower rate on the return trip, and then be disappointed. Some $300 was lost to bee-keepers at Toronto last September, where we fully expected there would be over the necessary number to secure the reduced rate.

If the Executive Committee (who were given the deciding power at Toronto) say that the convention shall be held in Lincoln, all well and good. The *Bee Journal* will help to have a good meeting, no matter where it shall be. But it does seem to us that our Nebraska friends should be willing to sacrifice a little in order that the rest of the country may be enabled to take advantage of the *assured* low rate of *one cent a mile* (which the G. A. R. has already been granted for their meeting the first week in September, at St. Paul, Minn.), unless they can guarantee at least the one-and-one-third rate.

In regard to a hall, H. G. Acklin writes as follows:

The G. A. R. encampment meets here Sept. 1st to 5th, and the Minn. State Agricultural Society Aug. 31st to Sept. 5th. We called upon E. W. Randell, Secretary of the M. S. A. S., to see if the Institute Hall, on the Fairgrounds, could be secured for the N. A. B. K. A. if they should decide to meet here or at Minneapolis, with the G. A. R. Mr. Randell says the hall can be had for a two-days' session (evenings lighted free if desired), free of charge, but will submit the matter to the President, Ed. Weaver, before an invitation is given. General admission to the grounds is 50 cts., and season tickets $2.00. It can be reached either from here or Minneapolis by electric car, for 5 cts. The admission is less than a hall of the same class can be rented for in either of the two cities, besides seeing the fair in the bargain, which I am sure most of the bee-keepers will be more or less interested in, especially those from this and adjoining States. If more than a two-days' session is wanted, a hall under the grand stand can be had. It is not so nice as the Institute Hall, but will do. Chairs will be provided by the M. S. A. Society.

St. Paul, Minn., April 9. H. G. ACKLIN.

A. I. ROOT IN REGARD TO THE ABOVE MATTER.

When this matter of a change of place of meeting was first presented to me, I replied that, after the assurances given at St. Joseph, to the Nebraska people, I did not see how we could well make the change. I now notice that the Omaha and other papers of Nebraska are making a vigorous protest. Here is an extract from the Omaha *World-Herald* of April 11:

When the convention was held at St. Joseph, Mo., in October, 1894, there was quite a little discussion in regard to the meeting-place for the year 1895. I made the official stenographic report for that body, and hand you herewith an extract from the proceedings copied from my shorthand notes:

The claims of Toronto were presented by Mr. Holtermann, of Brantford, Ont.; the claims of Lincoln, Neb., were presented by Mr. L. D. Stilson, of York, Neb.; the claims of Ottawa, Canada, were presented by Mr. Fletcher. Mr. Dadant, of Hamilton, Ill., and Dr. C. C. Miller, of Marengo, Ill., also urged that the next meeting be held in Toronto, in view of the great electrical exposition to be held there at the same time. Mr. Frank Benton, United States Department of Agriculture, presented, for Mr. Hershiser, the claims of Buffalo. The claims of Denver were also presented by the commercial representatives and by the mayor of that city, as also by Mr. W. L. Porter, of Denver. It was a hot race between Lincoln and Toronto; but the good-natured bee-keepers of Nebraska, not wishing to appear hoggish, withdrew her claims in favor of Toronto, after exacting the promise that the annual convention for 1896 should be held at Lincoln. The city of Lincoln, Neb., was declared the meeting-place for the year 1896.

The board of directors at the meeting held at Toronto in 1895 declared the city of Lincoln, Neb., as being the place of the annual meeting of the North American Bee-keepers' Association, and I think it no more than right that the citizens of this city should do all in their power to have the convention of 1896 held there. LOUIS R. LIGHTON.

I think the above is correct; and it seems to me it settles the question unless the Nebraska people freely and cordially consent to a change —at least, that is the way it looks to your humble servant A. I. R.

BUYING BEES AND PAYING HEAVY EXPRESS CHARGES.

IN the *American Bee Journal*, page 199, the question is asked whether it is best to buy bees in the pound, nucleus, or colony form. Dr. Miller, in his reply, rather advises the first mentioned. I do not know that there are any breeders now who are selling bees by the pound without comb or brood. While for a time we seemed to have fair success, we found, in looking up the matter, we were losing too large a percentage, and we finally resorted to selling nuclei and colonies, and discontinued the pound business entirely. The nuclei invariably went through in good shape.

My way of answering would be this: Instead of sending a long way for bees by express, and paying a rate and a half, I would advise bee-keepers to buy near home. This can usually be done, and then introduce an Italian queen or queens later on, after transferring. Common bees can usually be bought of farmers very cheaply; and the start, to say nothing of the enthusiasm and experience in transferring and introducing, costs far less than sending clear across the country, and paying heavy express charges for just a few bees. If bees could be sent by mail it would be a different matter.

A. L., Ohio.—The bees will not build combs back of the plain division-board, illustrated and described in our catalog, unless honey is coming in pretty freely. In that case it should be shoved over, and more combs put in. Bees should never be allowed to become so crowded as to build combs back of the division-board.

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Be kindly affectioned one to another with brotherly love; in honor preferring one another.—ROMANS 12:10.

Among the Kind Words in our last issue, page 283, there is one kind letter that lies heavily on my conscience—not because there is any thing unkind about it, or any thing out of the way at all with what the good brother said who wrote it, only it was a private letter, and was sent us for our encouragement. It was all right and appropriate as such; but we here—I guess I had better not say *we* after all, for I think it must have been I myself—A. I. Root, who decided to give it a place in print. Here is the kind word:

GLEANINGS is the only bee-paper that I am now taking. I have taken it ever since its advent, and don't expect to cut it off very soon. It is away ahead of all others, and the cheapest bee-literature published. W. D. WRIGHT.
Altamont, N. Y., Jan. 6.

The first sentence would be all very well for publication, and the same with the next one. The words, however, where it says, "GLEANINGS is away ahead of all others," was certainly out of place in print, especially in our own journal. I know such things are customary, perhaps even in religious papers; but since I have professed to be a follower of Christ Jesus, things of this kind have always pained me like discordant music. It is hardly within the line of Christianity. I do not know that any one of my good friends who are editors of the other journals saw it or felt pained by it—I hope they didn't. But it has pained *me*, not only every time I saw it, but sometimes when I lay awake nights thinking of different things. Just at this point my stenographer informs me that not all of the kind words in that letter were allowed to go into print. Well, I am very glad if that is true; but I am sorry that the one who did the crossing-out did not cross out the last sentence. I am sure that both Ernest and John will heartily agree with me in this, although I have not talked with them about it. I know how customary it is in business for a business man to proclaim loudly that he is selling goods *cheaper* and of *better quality* than anybody else *in the world*. I have noticed seed catalogs, and advertisements of seedsmen, where they say, "*Our* seeds grow. *Our* seeds produce better crops and finer stuff than those sold by anybody else." Some of you may suggest that *perhaps* these statements are true, and it is always right to tell the truth. My friend, it is *not* always right to tell things everybody should be ashamed of, even if it *is* "the truth." The Bible says it is not. If you always tell all the truth, you will not be in line with the closing words of the beautiful text I have chosen—"In honor preferring one another." Suppose the editors of our several bee-journals were to meet together at some convention (God grant that they may thus meet again and again), and suppose they were to sit down side by side, like a lot of brothers. Why! the very thought of it fills me with enthusiasm. Now, while they are thus sitting together, and chatting, in a brotherly way, suppose somebody should say that he thinks GLEANINGS ahead of all others. I do not think anybody would say that—that is, if he knew he was in the presence of the editors of the different journals. If he did not know to whom he was speaking, we might excuse him; but even then I believe I should blush for shame. I do not *want* GLEANINGS to be "ahead of all others." May be when I forget myself, some such foolish ambition crops out. If so, it is surely the prompting of the evil one. We want to make GLEANINGS as valuable as we possibly can, but never at the expense of crowding others down or out. May God help me to make this statement true so long as he shall permit me to live; and may he help me to rejoice in seeing the others grow and prosper—yes, to feel even *more* joy and pleasure in seeing them prosper than our own, for that would be in the line of our text—"In honor preferring one another." Dear friends, do you think that sort of spirit would spoil our own journal or our own business, whatever it may be? Why, nothing of the sort. It would be just the contrary. It is the broad, whole-souled, *generous* man who prospers and builds up a great business; and, better still than a great business, is the esteem and brotherly feeling that he builds up in the hearts of all men. When I get glimpses of the way these things come out when we have a Christlike spirit in our hearts, it brings back again and again that old text of mine, "O thou of little faith! wherefore didst thou doubt?" These were the words of Jesus to poor Peter when he began to sink in the water; and they fit the case exactly that is right before us. When a man begins to be afraid that it will not *do* for him to be fair and generous, and to love his neighbor as himself, then he straightway begins to sink down into the waters of selfishness and self-interests. May the dear Savior be always near at hand to reach down as he did to Peter and lift him up.

A great many times we get an idea that there is no room for all of us in the world. Dear brother, when you get to feeling that way, take the little text I have given you, commencing, "O ye of little faith!" If we all undertake to do one and the same thing, or if we try to copy after a neighbor who has been successful, there may not be room for all of us; but God did not intend us to *all* follow in one channel. Don't you see how different we are? Every one of our bee-journals has some characteristic of its own. If its editor is a good man he very soon strikes a field that has been comparatively neglected. God did not intend that we should all be alike. There should not be any better or best about it. Mind you, I am not criticising the friends who write me such kind words, for I happen to know that other editors get many similar kind words. Kind words are all right. However, it is not always in good taste to print all of them. I am afraid I have allowed others to go into print that were not intended for it, and should not have been printed. May God help me to be careful in this respect; and may I be enabled to hold that beautiful thought nearer to me—"In honor preferring one another."

Years ago there used to be *clashing* among the bee-journals. May God be praised for the fact that there is but very little of it now. In fact, some of the brethren have found fault with us, and called us a "mutual-admiration society." Yes, there have been several criticisms, to the effect that we as editors of bee-periodicals were too careful about any reflections on each other, and that our leading contributors are afraid to speak out the plain truth. I hope it is true that most of us are professing Christians, and that we have a Christian spirit toward each other, and, in fact, toward all men, whether we are really church-members or not. If you want to see exhibitions of acts and words that are unchristianlike, look over the class journals published now over almost all the world. Occasionally I hastily scan some of them. Sometimes I see page after page filled with quarrels and harsh words. Valuable space is taken up with something that does not teach

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the industry at all which the class journal represents—yes, even teaching something that is evil instead of good. Our bee-journals have been kept remarkably free from things of this sort. Our *leading* journals especially, contain something good and valuable on every page and column. It is not always exactly in line with bee culture; but it is probably helpful to the people who subscribe for the journals.

Some years ago, at a State fair, in shaking hands with different bee-keepers I got into a crowd that was discussing bee-journals. Some of them were acquainted with GLEANINGS, and some were not. One man made a remark something like this:

"Well, gentlemen, when you get right down to it the old *American Bee Journal* contains about all there is that is really valuable in regard to bee-keeping. The others do not amount to much."

When he said it he gave me a glance that I understood. If I remember correctly, he and I had had some little differences in some former deal. Now, that was an unkind speech, even if it were true; and I think it must have troubled him some afterward, especially as I made no reply. A long time afterward, he asked me if I remembered it. I told him I did. He said he had often been sorry that he spoke as he did. I know how natural it is, in the rush of business, to try to get all the trade you can, especially in these times of sharp competition. A good many times we pay out money for advertising that does not seem to amount to much. It is getting to be now one of the fine arts to attract attention by an advertisement; but, dear friends, let us not forget that selfishness and greed do *not* pay in the end. The selfish, greedy forms of advertisements have been pretty well worked up. The ground has been gone over again and again. Once in a while we see an advertiser who has Christian spirit enough to say, even in his advertisements, "We do not want all the trade nor all the business; but we should like our share, and we should like to show you what we can accomplish in the way of things to help you along in your business." How I do like to see this spirit! Another thing, once in a while we find a man who does not promise very much in his advertisements and circulars; but when you send him an order he takes pains to show that he not only lives up to the very letter of his agreements, but that he does a little more. By the way, let me give you a little hint in the way of securing and holding trade. A good many commodities are constantly changing in value. You have got out your printed price list. Something happens that enables you to either buy or produce at a cheaper figure the article you sell. But the money comes according to the advertisement. It is perfectly fair and square for you to keep it; but you do not know how much good it does your customer to tell him that the goods have come down, and that you are enabled to place a few cents or dollars to his credit; or inclose some postage-stamps in your letter. See what thanks you get by such a method of doing business. Why, even our street-fakirs have got hold of this thing, and make capital out of it. A man stood on the street selling lead-pencils from a wagon. He said they were worth 10 cents apiece. He made drawings with one of them on some heavy cardboard, to show what a beautiful black mark the pencil would make. Then he pushed the slender point right through the cardboard, again and again, to show how strong the lead was. Then he played auctioneer, and asked what he could get for a whole dozen. After he had sold quite a lot of them at 40 cents a dozen he just won that whole crowd of people by giving back to each purchaser just half of his money. The idea that an auctioneer, after he had sold goods on honest bids, and got his money in *his pocket*, should then turn around and give back half of it! I suppose the fellow made a small profit at even 20 cents a dozen; but he broke the ice, as it were, got acquainted with his audience, and sold a great *wagonload* of goods before he left the spot. Now, this was a trick. We need not stoop to tricks; but we may make it a study to see if we can not make friends, and please our customers, every day of our lives, by unselfish acts. Fight down that greedy, selfish spirit that would prompt us to take every penny we can get hold of. Watch for chances where you can safely—that is, without loss—give a customer a little *more* than he expects or bargained for. Let us make his interest *our* interest. Let us "do good, and lend." If the man we lend to does not always return the things, or pay us back in other generous acts, the great Judge of all the earth will remember us, even if our neighbor does not; for he has said in his message to us that he will see to it that we shall receive in due time "good measure, presssd down, shaken together, and running over."

MULCHING FALL-SET STRAWBERRY-PLANTS; A NEW USE FOR THE NEW CRAIG POTATO.

I have several times spoken of the enormous amount of potato-tops produced by the Craig Seedling. No other potato that I have ever had any thing to do with comes anywhere near it. Last fall, when showing visitors through our grounds I would frequently take hold of a Craig top and raise it up to show them that, when stretched up, they are higher than my head; and then I would reach down under the vines where the ground was burst open, and pick out a potato weighing a couple of pounds, and hold it up. Well, after the frost killed the vines we let them lie until they were perfectly dry, for I am sure it pays the potato-grower to leave his late potatoes until every bit of green life has gone out of the stalk. The potatoes certainly increase in size and maturity so long as there is the least bit of life in the vines; but after the vines were all dead there was such a mass of the dry brush that it was a question what to do with it. There were simply *wagon-loads* of the tops. As a patch of fall-set strawberries was near by, I directed the boys to place the dry tops nicely over the rows of plants. There were so many of them that I thought they had got the strawberries covered pretty thick, but I concluded to let them go. Well, at the present writing, April 2, the strawberries have done so nicely under the potato-tops, compared with those that were uncovered, that I am ready to declare I never want to winter another row of fall-set strawberries without protection of some kind; and I would use potato-tops every time if it is possible to get them. They are absolutely free from either seeds of weeds or grain; they lie up loose, so as not to smother the plants, and yet they catch and hold the snow, and prevent alternate freezing and thawing. This has been a more serious matter during the winter just past than I ever saw it in my life in any former season. Why! not only were my fall-set gooseberries, currants, etc., clear on top of the ground, but a good

many gooseberries that have borne crops for a couple of years were now clear out, with their roots in the air. Of course, we can dig a hole and plant them where they used to stand; but they have been greatly injured if not killed outright. Some kind of mulching would have saved all this; and I am more firmly determined than ever before that I will adopt Terry's plan with raspberries, blackberries, gooseberries, and currants, not only mulching the ground with straw or something else so as to keep down the weeds but to protect from frost, and just now I am better pleased with potato-tops than any thing else in the world; and as the Craig Seedling produces a greater amount of tops than any other potato, this will be one reason for planting them. I have never tried potato-vines as a mulch in fruiting time to keep the berries out of the dirt, but I am sure it will answer, and they will soon rot down, after picking, and make a valuable humus for the soil.

Now, lest you come to the conclusion that my decision may be influenced by the fact that the Craig potato is of *my introducing*, to offset the above I want to tell you some of its faults. First, it is a red potato, or on the reddish order. Second, it has very deep eyes. Third, it is not of the very *best* quality—that is, it is not equal to the Freeman and New Queen in the fall of the year; but for a winter and spring potato, especially the latter, it is almost equal to *any* for table use; and on our grounds it is certainly away ahead of every thing in that class of potatoes represented by the Rural New Yorker No. 2.

PREPARING SEED POTATOES FOR PLANTING: THE WAY THEY DO IT ON THE ISLAND OF JERSEY.

A single chapter from the pamphlet now in press, entitled, "Potato Culture on the Island of Jersey."

From the last potatoes harvested, the seed is saved. From an eighth to a tenth of the whole crop is thus reserved. Middle-sized tubers are selected, from two to three inches in length. These are set on end in shallow boxes, or trays—the eye, or seed end, up. The trays are made according to individual taste, usually of about the following dimensions: Of light ½ or ⅜ inch stuff; are 2 feet (or a little more) long, 1 foot wide, 2½ inches deep, with a handle across the long way, about 6 inches above the bottom. They are so made that they can be stacked in piles, and meanwhile their contents be wholly exposed to light and air. The uprights and handles, etc., are necessarily stout. When the potatoes are on end in these trays they are wholly exposed to the light and air, and do not press upon or scarcely touch each other, and touch the trays only at the stem end. The trays, when filled (with about twenty pounds), are set in a light place, often in the sun, for a few days, but usually in an open shed, and are allowed to remain thus exposed till they become hardened by the light and air—often till they are tough and green; as the rule seems to be, the tougher the better. Later on they are set in stacks on the floor of the loft over the cow stable, or in the barn, where large windows admit plenty of light. The temperature is kept cool, and thus they remain till the day of planting. The *trays* are moved from time to time so that those beneath may be brought to the top; but the *potatoes* are not moved. The purpose of this curing process is to check the weak sprouts and to concentrate all the energy of the tuber into two or three strong shoots at the seed end. The result is, that each tuber at planting time has two or three sprouts of great strength at the tip of the seed end, instead of a dozen weak ones all over the surface. So deeply and strongly are these sprouts attached, that we have seen potatoes picked up and whirled about by them, as though they were the elastic of a toy ball. If there were a dozen sprouts from as many eyes, each would be weak and easily broken off, as is the case when potatoes are stored in heaps or in dark places. The toughening of the tuber by sun and air prevents the breaking-out of sprouts except at the right time and in the right number, and makes those that do break out intensely vigorous. Mr. Le Cornu, before quoted, said that seed thus prepared gains at least one month of time in coming out of the ground and to maturity; and he adds that the preparation of the seed must be viewed as of primary importance; that is, together with the selection of a suitable and well-manured piece of ground, forms the only secret of success in the culture of the early potato.

STORING-TRAY FOR SEED POTATOES.

We shall have to explain to our readers, that, by mistake, the above engraving is made much too tall; for you will see by the description above that the tray is only 2½ inches deep; the handle of the tray should come just high enough up to clear the potatoes. These trays may then be stacked one above another, as high as need be. Of course, the idea is to have them light and strong.

This placing of the seed in trays, and never touching with hand or shovel till the time of planting, is a great economy in labor, in handling and in sorting, and also in keeping the tubers unbruised and in perfect condition. There is now no diversity of opinion in Jersey as to the manner of curing the seed.

Potatoes for seed are now universally set on end, eyes up in shallow trays; are exposed to strong light and free air till tough in flesh, and are then stored in well-lighted lofts till the day of planting, when they are carried directly to the field and set in the drills. Out of this tough flesh, and through this leathery rind, burst a few strong shoots, and into them goes the energy of the whole tuber. This gives great gain in the time of growth, in the size and uniformity of the fruit, and in the immunity of the whole plant from disease, because of its vigor.

The impression, as one watches the planting of the potato-sets, is that of planting young trees—the sprouts are so vigorous, so well bunched at the tip of the tuber, and so carefully set in the drill. This process necessitates whole tubers for seed; and after every kind of experiment, the universal practice for many years has been to plant only whole seed. Now and then, where a farmer is compelled by lack of the middle sizes, he cuts very large tubers carefully into halves through the seed end, giving two sprouts to each half, but this is not a matter of choice. Seed potatoes are now and then brought in from England and France in order to keep up the size and vigor of the plant.

From thirty to forty bushels of seed per acre are planted—as much often put into the ground in seed as is taken out by the American farmer in crop. The Jersey farmer considers the Jersey mode of curing and keeping the seed-sets, as above described, the main secret of his success—but there is no patent on the process.

This arrangement will come in most beautifully this spring, on account of the low prices on almost all sorts of potatoes. Don't worry any more about keeping your potatoes in a cold cellar until time to plant. Put them in shallow trays, according to the directions given above, and store them where it is both light and warm, and let them sprout all they have a mind to. I may say this thing is not entirely new. I have raised potatoes more or less for many years, something this way, setting them out as I would cabbage-plants, after all danger of frost is over. The trouble was, I got them just right, only where they were picked off from

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the *tops* of the potato-boxes; but these shallow trays do the business to perfection; and if you are engaged in the small-plant business, they are just the thing for plant-boxes. You can take them by the handles, one in each hand, and carry them out to the fields where you want your celery, cabbage-plants, or any other kind of plants. The idea of this tray for seed potatoes, plant-boxes, and other uses, is of itself worth a big lot. By the way, the berry-stands, composed of four shallow trays, may be used, I think, very well for sprouting seed potatoes, especially if you have some old trays too much soiled to be used longer for berries.

NEW POTATOES THAT ARE SIMILAR IN CHARACTER, ETC.; SOMETHING FROM THE OHIO EXPERIMENT STATION.

Mr. Root:—I see that, in your price list of potatoes, you state that the Experiment Station calls White Bliss Triumph the same as Salzer's Earliest. This is a mistake, as we had reference to the Red Bliss Triumph. Of course, we do not mean to say that Salzer's is not a seedling, but we have not been able to distinguish it from the other; and, so far as we can see, Stray Beauty is another name for the same thing. It often happens that potatoes are reproduced from seed, and the Ohio is a good example. No one can distinguish between Early Ohio, Ohio Jr., Everitt's Six Weeks, and Salzer's Six Weeks; and we have a seedling of exactly the same type. How many times the Early Rose has been reproduced, no one can tell. I suppose that, when the fact can be established that a variety is a seedling, it should be recognized as new, although it may have no distinctive merits W. J. GREEN.

Wooster, O., Apr. 4.

Friend Green, I really beg your pardon. It was my stupidity in saying that you pronounced the White Bliss Triumph the same as Salzer's Earliest. I overlooked the fact that a *white* Bliss has been recently produced from the red one. Your communication reveals a wonderful fact—at least it is new and wonderful to me; and that is, in the pursuit of new varieties of plants and vegetables the same thing may be brought out by different parties widely separated from each other. I know that you have pronounced the Early Ohio and the different Six Weeks potatoes as one and the same thing. But several have written me that it does not prove so in their experience. Now, both the Early Ohio and the Early Rose are old and worn out, if I may use the expression. Is it not possible that the same thing brought out *later* (say by raising potatoes from the seed-balls) will have more vitality and be a better yielder? T. B. Terry says the new Thoroughbred reminds him very much of the Early Rose when it first made its appearance. If one of these new seedlings has no merit *at all* over the old one which it resembles, it does not seem as though it should be pushed upon the public, just to confuse people; and herein is where you people at our experiment stations are going to help us.

WHOLE POTATOES FOR SEED.

I have never failed to obtain the largest yields from the use of whole tubers for seed, and I have made comparative tests every year for a long period. This is why I have never looked with even the least favor upon the idea of using single-eye pieces in planting. There are some growers who having the right (but unusual) conditions for it, claim great success from single-eye planting. I am sure, however, that the average grower, like myself, can do better by using larger seed-pieces. It is chiefly a question of cost of seed. The only valid objection that I have ever found to the use of whole potatoes (when these are in good condition for seed) is their cost. In many cases this objection will amount to very little this year. Potatoes are so cheap that all people can have a chance to try the virtues of heavy seeding.

The above which I clip from the *Farm and Fireside*, I can heartily indorse. Some years ago, when potatoes were a drug in the market, I had some very nice ones that I could neither sell nor give away. In a fit of desperation I planted them, making rows about three feet apart, putting a large whole potato every foot or fifteen inches in the row. I think I must have planted toward 40 bushels on an acre; but I was rewarded by getting toward 300 or 400 bushels. The only difficulty was that the enormous lot of tubers burst the ground open so as to to let in the sun, making a good many of them green. This hurt them for table use, but it did not injure them for seed. The next year there was a scarcity, and I got about $1 a bushel for every one of them. Now, do not throw your potatoes away because you can not sell them. Plant them on some good ground, as above, and they may bring a better price in the fall. By the way, when I want to raise potatoes very early I have always had better success with *whole potatoes* put in something as above.

THE RURAL NEW-YORKER NO. 2; ITS ADAPTABILITY TO AVERAGE FARMING.

Friend Root:—Knowing the active interest you have always taken in gardening-topics, I must tell you how the Rural New-Yorker has, during the past dry season, proven to my satisfaction its iron-clad nature, and ability to withstand drouth.

During the month of June the rainfall was sufficient to mature a full crop of early-planted potatoes. Following my usual custom, my main crop planting was done very late in the season to take advantage of the fall rains, which last fall failed to materialize. Ohios, Queen of the Valley, and Rural, were all planted during the first week in June (a good two weeks *later* than the Rural should ever be planted in this latitude) Through June the surface soil remained moist; but in July and August the rainfall amounted to almost nothing at all. Considering that three years of continued drouth had left the subsoil as dry as powder, this was a critical period for the development of a crop; but it afforded the best possible opportunity for testing the hardiness of varieties.

Continuous shallow cultivation was practiced, using the smoothing-harrow until potatoes were up sufficiently to show the rows, when its place was taken by the one-horse cultivator, using five narrow shovels, with a piece of board attached back of the shovels to act as depth-regulator and leveler. The cultivation was kept up just as long as the tops would permit; after this the only attention given was to pull seed weeds wherever they appeared.

The Ohios suffered most from the start, and by the last of July there were spots on the lightest soil where they were all dead. August 15th they were ready to dig, having matured a crop of 65 bushels per acre of small potatoes.

Up to this time the luxuriant tops of the Queens and Rural New-Yorkers showed but little sign of the dearth of water. From now on, however, its effects became more and more apparent. At the close of each scorching day their drooping foliage told the story of consuming thirst. At this stage the extraordinarily heavy top and root growth of the Rural proved invaluable. The rank growth of tops covers the ground completely before much is done toward developing tubers, so shading the ground as to materially check evaporation, while the innumerable searching roots are wringing every drop of available moisture from the cool well-shaded soil. By early September the Queens were out of the race, giving a crop of a trifle over 100 bushels per acre of fairly large, though very rough, mis-shapen tubers.

Sept. 16 the Rurals, still thrifty and growing vigorously, were cut down by the frost. They were left in the ground until late in October, to allow of their ripening thoroughly.

From the ten acres, we dug 1700 bushels of perfect potatoes, remarkably free from blemishes of any kind, and practically all of marketable size. In an ordinary season I should consider 170 bushels per acre a light crop, considering the adverse conditions under which it was grown. I look on the comparative yields as a strong testimonial for the hardiness of the Rural. Not long since I asked a garden-

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er of long experience his opinion of the Rural. He said that, though he had grown many varieties which, in a favorable season, would yield as heavily, he had found none that would stand "grief" as well as they. This quality makes them pre-eminently a potato for the farmer's garden, as the majority of farm gardens can offer the potato little but "grief" in the way of culture; and the ordinary varieties, when so treated, too often reward the farmer with *disappointment only*.

Through the Missouri River counties of Pottawatamie, Harrison, and Monona, the acreage of potatoes will be much increased this year.

FREDERICK M. CRANE.

River Sioux, Ia., March 25.

My experience agrees almost exactly with what you tell us, friend Crane. Farmers who have always thought they could not make it pay to raise potatoes, succeed almost invariably with the Rural; but on our ground the new Craig outstrips the Rural in almost every one of its iron-clad qualities. I am watching anxiously to see if it's going to succeed everywhere as the Rural does.

WHITE BLISS POTATO, AND ALL ABOUT IT.

The White Bliss grows to a good size for an extra early potato. I have often seen them weigh from 1 to 1½ lbs., possibly more. It is not unusual for our more eastern truckers to ship 80 to 100 bbls. per acre, spring crop, of them. It is the "roundest" potato I ever saw, and has red or pink blotches on it, and pink eyes. With us the potato-bug does not eat it as badly as other kinds. I have heard quite a number of our farmers mention this in favor of White Bliss. Hope you will especially notice this feature, and see if it holds good in Ohio. I presume you know the red Bliss Triumph is a seedling from Early Rose, fertilized with Peerless. It was certainly a happy nick.

T. B. PARKER.

Goldsboro, N. C., Mar. 28.

[MINNESOTA FOR POTATOES, TURNIPS, ETC.]

I have a big potato yarn for A. I. Root. One of my neighbors, Mr. C. Cheely, a subscriber to GLEANINGS, raised 900 bushels of Burbanks and Beauty of Hebron pototoes on one acre, *without fertilizer* or without special cultivation — great potatoes you could carry in your arms like stovewood; and our postmaster raised a single specimen Burbank weighing *6 lbs.*; also 60 bushels of Freemans from one bushel planted. Just imagine a turnip weighing 25 lbs.

I am greatly in love with GLEANINGS. In fact, I always have been. I was pleased to see pictures of Lewis, Falconer, and Leahy. I have dealt with the G. B. Lewis Co. since coming to Minnesota.

Morrill, Minn., Mar. 7. A. T. MCKIBBEN.

Friend M., hadn't we better all sell out and go to Minnesota? By the way, however, almost everybody had big crops last season, and turnips, too, for that matter; but I do not think very many of us saw such a yield as you mention, nor potatoes and turnips of such size.

A SMALL GREENHOUSE IN CONNECTION WITH THE DWELLING.

I am intending to build a new house, and desire to have a small greenhouse in the southwest side of the kitchen, on the second flat. I should like to have your opinion in the matter of heating. I use a coal-range in winter. By attaching an ordinary water-front, the same as they use for heating water for sinks and bath-rooms, could I not run the water-pipes through the greenhouse and thus keep it warm? or would an ordinary water-front supply heat enough to keep the greenhouse warm enough? The greenhouse will face the southwest. Would it be practical to make a cement floor on top of the ordinary greenhouse floor, so that any drip from watering the plants would not be liable to soak through on to the ceiling below?

Stratford, Ont., Can. JOHN MYERS.

Your plan is all right, friend M., and the arrangement you mention for heating will answer nicely if your greenhouse is not too large—say 10x15 feet. It might be 10x20 or 12x20, if your hot-water coil is of pretty good size. Both John and Ernest have a coil water-pipe set in their hot-air furnaces. These pipes are kept full of water by means of a rain-water cistern in the attic; but in both cases the apparatus furnished too much heat—the water would get to boiling. It depends upon the size of the heater you are going to put in your house. I suppose any practical plumber familiar with hot-water heating could advise you in regard to the size of pipe, number of coils, etc. I am afraid a cement floor would hardly be safe under the circumstances; and if much water is allowed to get on such a floor it will get through the cement to the wood, and make bad work. So far as my experience goes, any arrangement to hold water inside of a dwelling should have a metal bottom—zinc, galvanized iron, or sheet copper; then have an outlet always open, so if any large quantity of water is spilled, instead of soaking up the floor, ceilings, and carpet, it will run outdoors out of the way. The rain-water tanks in our attics are all placed in a shallow pan. Should the tank, by any accident, run over into the pan, the water goes out through an escape-pipe into the open air.

Health Notes.

A NUTRITIOUS HEALTH-FOOD.

Friend Root:—I am interested in your "Health Notes," and want to call your attention to some things which I have been forced to learn. I am very fond of oatmeal, and also of prepared wheat, but have had so much trouble with indigestion of the lower bowels that it was not safe for me to eat them until I made the discovery which I am about to relate. I tried "granola," but I did not like it very well. I also tried the "zwieback" fixed up as Mr. Ames suggests, but made up my mind some time ago that it was not the thing I was looking for. By the way, if it is well browned and then ground up, it makes a very good drink made like tea or coffee, and sweetened with honey, but it will not take the place of oatmeal with me.

I tried an experiment by mixing a good quality of prepared oats with Eli Pettijohn's best wheat. I mixed them half and half, but I now think one of oats and two of wheat will be better. I put them in a double roasting-pan, and put them in the oven of the stove, and let them brown slowly for several hours until they were an even brown all through. Care must be taken not to let any of the grains *burn*, as this will spoil it. When it is thoroughly *browned* and dry and crisp, I run it through my meat-cutter. The cutter should not be set too close, or it will clog up. This makes a fine dark flour. Out of this I make mush. The water should be *boiling* hot when the flour is stirred in; and when it is thick enough, set it on an asbestos mat and let it cook slowly for about thirty minutes. Sweeten with fine extracted honey—I prefer alfalfa—and serve with cream, and you have a dish good enough for a king. The best of all is, I can eat all I want of it, three times a day, and it never hurts me, and I do not think it will hurt any one. On the contrary, it will tend to make them fat and healthy. Try this and see if it does not beat your wheat as you prepare it. This is very cheap food, as I get the best of oats here for 5 cts. per package of two pounds, and the wheat costs only 10 cts. per package. Of course, I do not live on this, but mix it with other food which I have found healthy and nutritious for *me*.

St. Joseph, Mo., April 6. EMERSON T. ABBOTT.

[Oatmeal is a strong food—too strong and irritating on the bowels for many. It is good in the case of those who do hard manual labor; but for persons of sedentary habits it should generally be avoided. In the proportion you use it and prepare it, it is probably all right.—ED.]

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Special Notices in the Line of Gardening, Etc.

By A. I. Root.

A POTATO NUMBER.

This issue of GLEANINGS, so far as my part is concerned, may be considered a sort of "potato issue." We thought best to give it all in advance of potato-planting. After this we propose to "let up" a little, at least on potatoes.

ALFALFA SEED—ADVANCE IN PRICE.

Just now the best we can do on alfalfa is $7.00 per bushel; ½ bushel, $3.75; peck, $2.00. In fact, the seed actually costs at wholesale more than we have been selling it for during the past winter.

SWEET CORN FOR FODDER.

In answer to several inquiries, we will, until sold out, furnish a good germinating variety of sweet corn, suitable for fodder, at the low price of $1.25 per bushel. This is liable to be the same corn that is listed at almost twice that price. You see, if no variety is named it gives us the privilege of selecting whatever promises to be in surplus at the end of the planting season. It can be shipped either from here or from Chicago, at the price mentioned. This price includes bag for shipping.

THE NEW FORAGE-PLANTS, GRAINS, ETC.

So many questions have been asked in regard to cultivation, etc., of Essex rape, cow peas, Kaffir corn, crimson clover, alfalfa, soja bean, etc., that we have prepared slips to be mailed in answer to inquiries. The slips give the value of plants, localities where they will probably flourish, time of sowing, care of crop, etc. Each or all will be mailed free on application. These slips will be first given in GLEANINGS, and then kept on file to mail to inquirers when questions come up in regard to these plants.

COW PEAS—THE STOCK PEA OF THE SOUTH.

In answer to several inquiries we would say that these are not hardy, like our garden peas here in the North. They are rather more of a bean than a pea, and should be planted about the time beans are put in the ground. After they once get started, however, they are a wonderfully rank and luxuriant plant, producing an amount of foliage and vines that is absolutely astonishing. It depends somewhat on the season as to the amount of blossoms and beans they will produce here in the North, as they are liable to get caught by early frosts in the fall. As the seed is now advertised at such low prices, however, it is not at all expensive to have our friends a little further south raise the seed for us. As a green crop to plow under, the cow pea will often furnish a larger amount of green matter in a short time than almost any other plant. It should be remembered that it is also one of the plants that gather nitrogen from the air, like all of the clover family.

PREPAYING EXPRESS OR POSTAGE IN ORDER TO SAVE OUR CUSTOMERS TIME AND MONEY.

I wrote at length in regard to this in our last issue. Just now a customer down in Missouri sends for 4 lbs. of seeds that should go into the ground at once. He does not send any thing for postage, and does not say a word as to how we shall send them. They can be mailed for 36 cts. The express company will also carry them for that sum if the charges are paid in advance. If the express charges are allowed to follow, however, they will be 50 or 60 cents. You see, the express companies have made an arrangement to compete with the United States mails, providing they have their cash in advance, just as the postal department has cash in advance for stamps. This arrangement is only for seeds, etc. Now, we know nothing whatever of this man. Of course we can find out, or we can write to him and ask him how he wants his stuff sent, and remind him of the fact that he had omitted postage, if wanted by mail; but this will make a delay that will damage him more than the money saved. I suppose most seedsmen would let them go on and let him pay the double express charges at destination; but I do not feel right in doing this. Under the circumstances, nine out of ten would send us the postage, and thank us. But there is the tenth one, who will never answer or say a word after he has received his seeds, even if we do explain that we have paid hard cash out of our own pockets to save him the money. It has sometimes seemed to me as though these people ought to have their names put in print when they refuse to remit postage or express charges that are paid simply to save them expense, loss, and delay. How is it, friends? Will it be best and right to print the names of people who are thus lacking in conscience? You see, by their acts they block the way that will enable us to save good people both time and money. We can not blame the express companies very much. If they are going to deliver seeds, etc., that are wanted right away, *at about half the usual express charges*, they certainly must have cash in hand in order to avoid loss.

HIGH-PRESSURE POTATO CULTURE—A NEW BOOK.

For some years I have had in mind the matter of growing potatoes in gardens or other high-priced ground, and managing so as to get them out extra early for city markets, and at the same time getting enormous yields on a small area of ground. Occasionally I have heard rumors of intensive agriculture and high-pressure gardening on the Island of Jersey, the Island of Guernsey, and other of the Channel Islands on the coast of France. Last fall I became acquainted with Rev. Charles D. Merrill, who, it seems, had visited the Island of Jersey, and was so impressed with some high-pressure methods, and the enormous crops of potatoes grown there on a small area of ground, that he wrote it up to be published in a book. The manuscript was submitted to me, and it was so much in line with my work, and gave so many facts from actual experience in growing potatoes in just the way I have indicated, that I bought the manuscript at once. Through press of business, the little book has been delayed, although I meant to have it out fully in time for potato-planting. The little pamphlet is to be a supplement to our potato-book, and will be incorporated in all that are sent out after this. It will be mailed free of charge to all who purchased one or more copies of the A B C of Potato Culture by T. B. Terry. To all others it will be mailed on receipt of 10 cents. It will contain 32 pages the size of the potato-book.

I may say, by way of brief summary, that on the Island of Jersey they manure their ground and work it up fine, away down 16 or 18 inches deep. After it is ready for the planting they do not permit a horse to step on the soft fine mellow soil; and they manage as far as possible to prevent even a big man from tramping the ground down hard. This agrees with my experience exactly. Instead of cutting potatoes to one eye, they plant them *whole*. See chapter on this subject, on another page. They use about thirty bushels of seed per acre. The business of growing early potatoes for the great London, Liverpool, and Manchester markets is reduced to a science. They get not only enormous yields per acre, but beautiful fine eating potatoes. Of course, the industry is quite a departure from the way we grow potatoes here in America in large fields; but, notwithstanding, you can see, when you come to read the book, that we have for years been growing toward their plans of working. My greenhouse experiments are right in line; and the trench system, so often described by the *Rural New-Yorker*, is also right in line. I hardly need tell you that the Island of Jersey is the birthplace and home of our Jersey cattle. The whole island is devoted almost entirely to Jersey cattle and potatoes. The land is so valuable that two or three acres are worth as much as 100 or more of farm lands here in America; and, stranger still, they grow *more stuff*, or, at least, stuff *worth* more, on two or three acres than many of our farmers do on a hundred-acre farm. If any of you have fond aspirations of making a living (say as you get along toward old age) from a couple of acres of ground rightly managed, this book will interest you more than any romance. The author is a minister of the gospel; and his enthusiasm and delight in seeing little patches of ground give forth their treasures is really contagious.

REDUCTION IN PRICE OF CRAIG POTATOES.

In putting our present price on the Craigs, $2.50 per bushel, I was largely influenced by friend Craig, the originator. You know we generally accord to the originator of any new plant or potato the privilege of fixing the price for at least one or two years after its introduction. At the present time, however, our stock is hardly half sold out; and as friend Craig

can not ask us to hold up the price after this date, I have decided to offer them the rest of this season for just ¼ our regular list price. See table below. This will put them at only $3.00 a barrel for the No. 1, and the very low price of *$1.50 a barrel* for No. 2. To all who purchased Craig Seedling potatoes of us, either last fall, during winter, or this spring, and paid the full prices below, we will make a rebate, to be taken in Craig Seedlings or other potatoes, as you may choose. Please write us at once what you bought, and when; and if our records show your statement to be correct, we will at once give you credit as above. With our very strict and careful sorting, the No. 2 are almost as good to *plant* as the No. 1.

Season of maturing in order of table, the first named being the earliest.

NAME.	1 lb. by mail.	3 lbs. by mail.	¼ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 20	$ 50	$ 50	$ 90	$1 50	$ 2 50	$ 6 00
" Second crop,"	15	35	20	35	60	1 00	2 50
Early Ohio	1 00	3 00	5 00	7 50	12 50	25 00	
E. Thoro'bred, Maule's*	15	35	20	35	60	1 00	2 50
Burpee's Extra Early	15	35	20	35	60	1 00	2 50
Freeman	12			20	35	60	1 50
Lee's Favorite	15	35	20	35	60	1 00	2 50
New Queen	12			20	30	50	1 25
Monroe Seedling	12			15	20	35	1 00
Beauty of Hebron	12			15	20	35	1 00
State of Maine	15	35	20	35	60	1 00	2 50
Sir William	12			20	30	50	1 25
Rural New Yorker	15	35	20	35	60	1 00	2 50
Carman No. 1	40	1 00	40	75	1 25	2 00	4 50
Carman No. 3	12			21	35	60	1 50
Irish Daisy	40	1 00	40	75	1 25	2 00	4 50
Manum's Enormous	20	50	50	90	1 50	2 50	6 00
New Craig							

Second size of Early Ohio, Lee's Favorite, New Craig, and Freemans (other kinds *sold out*) will be half above prices. Above prices include packages for shipping. Potatoes will be shipped at once soon as order is received, so long as our stock holds out.

REDUCTION ON OTHER POTATOES.

We also make the following deductions on other potatoes where we have surplus stock; namely, Early Ohio and New Queen,† ¼ off from above prices; Monroe Seedling, 20 per cent off; making them an even $1.00 per barrel; State of Maine, 20 per cent off, making them only *80 cents per barrel*. All others will be at list prices.

REPORTS IN REGARD TO CRAIG POTATOES FROM DIFFERENT LOCALITIES.

The 1 lb. of Craig potatoes I bought of you yielded ½ bushel, but quite a lot of small ones. They had a very poor chance, a pear-tree shading a part of them. SAM'L HEATH.
Tidal, Pa., Oct. 19, 1895.

We planted half a peck of small Craig potatoes; and when we came to dig them this fall we had 4½ bushels of nice big ones. We like them on account of nice size and good flavor.
Savanna, Ill., Sept. 24, 1895. CHAS. D HANDEL.

We bought 20 eyes of Craigs from Christian Weckesser, Niagara Falls, N. Y., in April last. They all started but one. We had 32 lbs. of good-sized potatoes. MRS. W. H. WESTCOTT.
Falkirk, Ont., Can., Dec. 23, 1895.

The 1 lb. of Craigs I bought of you made 18 hills; but only about half of them started. I dug them a few days ago—40 old whoppers; no small ones except in one hill. There was no sign of any scab on any of the Craigs. E. MANNING.
Jacksonville N. Y., Oct. 23, 1895.

I procured of you last spring half a peck of seed. I cut it to single eyes, making a row of 175 feet. There was a little more than three bushels; weighed from 19 ounces down; very few small ones; best potatoes I have. I shall plant all I have next year. S. W. SALISBURY.
Independence, Mo., Oct. 30, 1895.

From thy pound of Craig potatoes I raised nearly one bushel. This season was the worst known for years. Blight struck them early, and some crops were ruined. The Craig grew profusely; very large vines; resisted blight best of any; in fact, they were green when all other varieties were dead.
South Portsmouth, R. I. JACOB ALMY.

46 LBS. OF POTATOES FROM 2 LBS. PLANTED.

The 2 lbs. of Craig potatoes were cut to one-eye pieces; vines very rank, but dead before frost. The yield was 92 lbs. of fine large potatoes, the best I raised this year. JOHN GEARHART.
Princeton, Mo., Nov. 6, 1896.

* The entire crop is at present controlled by Wm. H. Maule. We are not at liberty to sell them for less than the prices he has put on them as above; but we will present a pound, postage prepaid, free of charge, to any present subscriber of GLEANINGS, for each NEW subscription he sends; we will also send GLEANINGS one year to every person who buys one-half peck of the potatoes. If you purchase one bushel you get GLEANINGS for eight years, either sent to yourself or to eight different persons, as you may choose.

† As we have still quite a supply of New Queens (all raised by T. B. Terry), we will meet prices from any responsible dealer ON THESE until stock is closed out.—A. I. R.

AT THE RATE OF 120 LBS. FROM 1 LB. PLANTED.

The ¼-lb. of Craig potatoes received from you was cut to single eyes, making 14, which were planted one in a hill, on moderately strong garden soil. I dug 30 lbs. of potatoes. I don't know much about how potatoes OUGHT to yield; but it strikes me that at the rate of 120 lbs. from 1 lb. planted is doing pretty well They were nearly all of good size. D. B. THOMAS.
Orlin, Mo., Oct. 28, 1895.

I planted about 2½ bushels of Craigs. The potatoes were cut to one eye, planted one piece in a hill, three feet checkrows, ordinary cultivation, no manure or fertilizer. There were at the rate of 300 bushels to the acre, and very few small potatoes. C. N. FLANSBURG.
Leslie, Mich., Oct. 10, 1895.

STILL BETTER; AT THE RATE OF 232 LBS. FROM 1 LB. PLANTED.

The 6 ounces of Craig potatoes mentioned in GLEANINGS, page 752, produced 87 lbs.; the main plants, 45 lbs.; side-shoots, 42. The latter part of September was very dry, but the side-plants remained green until frost. G. J. YODER.
Garden City, Mo., Nov. 15, 1896.

[Perhaps I may add that I am personally acquainted with Mr. Gideon Yoder, having visited his home. The method by which he accomplished this astonishing result will be found in GLEANINGS, page 752, 1895.—A. I. R.]

REPORT FROM E. C. GREEN, OF THE OHIO EXPERIMENT STATION.

I can say that we had no variety, out of 100, but showed signs of blight by the middle of August; and by Sept. 1st all were dead, or practically so. The Craig held out as long as any kind, but had to give up long before the frost. I think I am safe in saying that your Craig Seedlings, that have gone through the summer without blight (I saw them while at your place), are worth much more for seed than ours which have blighted, although we have some very fine Craigs notwithstanding the blight. E. C. GREEN.
Wooster, Ohio, Oct. 7, 1896.

Tennessee Queens.

I will offer for sale in April and May tested Italian queens reared last year from 5-banded stock; good serviceable queens; also queens reared from imported stock, at $1.00 each; 6 for $5.00. Will have untested queens in May.

W. A. COMPTON, Lynnville, Tenn.

Say! Do you want regular old-fashioned A No 1 Italian queens? We've got 'em at the Evergreen Apiary, Quebeck, Tenn. Queens, 75c, $1.00, and $1.50; nuclei, $1.75, $2.25, and $2.75. Big discount on quantities.

COOPER & GILLETT.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

ROOT'S GOODS AT ROOT'S PRICES.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Please mention this paper.

LARGE ILLUSTRATED **CATALOG FREE.**

It contains instructions, and descriptions of a full line of Bee-keepers' Supplies made by the A. I. Root Co. Send list of goods wanted and get prices. Beeswax made up, bought, or taken in exchange.

M. H. HUNT, Bell Branch, Mich.

Read what J. I. PARENT, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to

THE A. I. ROOT CO., Medina, O.

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LOWER PRICES FOR BEESWAX.

Owing to decline in the market price of beeswax we will pay from this date, till further notice, only 25c cash, 28c trade, for average wax delivered here, instead of former prices.

COMB-FOUNDATION MACHINES.

Since the last edition was mailed we have sold both of the second-hand ten-inch foundation-machines there offered. We still have the 6-inch, also the old stock of new ones offered at special prices. We have taken in a second-hand 10-inch Pelham, which is in good order, a good machine for a Pelham. This we offer for $8.00.

HONEY MARKET.

We are entirely sold out of comb honey, and could place more if we knew where to get it at the right price. Dealers seem unwilling to pay any more than they have been paying in order to get it, preferring to let the trade go without. We have a good supply of extracted, as listed in last issue, and shall be pleased to hear from those in need.

CREAM SECTIONS.

We are unable for the present to furnish any more cream sections 1⅞ wide from stock here. We have over a million of the No. 1 white of this width in stock; and during this month we have been and shall be making other widths on orders. The cream, or No. 2, are the seconds accumulated while we are making the best grade; it follows, therefore, that we shall not have any more cream 1⅞ wide to furnish this month, and we are not likely to have many more this season. The No. 1 white cost so little more, and are so much nicer, that we hardly see what object any one can have in ordering the creams. We have of other widths than 1⅞ the following lot of cream sections which we offer at $2.00 per 1000; 5000, $9.00; 15M 4¼x1⅝ or 1¾, full, 2 openings; 20M 4¼x1¾, 4 openings; 35M 4¼x1¾, 2 openings; 10M 4¼x7-to-foot. We have also some 50M of 4¼x1½ white sections which we offer at the same price.

SEED POTATOES FROM NEW SOUTH WALES.

We have just received from Mr. Herbert J. Rumsey (the man who sent us the Tonga bean) a pint of seed potatoes by mail, in perfect condition for planting; in fact, they have just begun to sprout a little. They were on the way 30 days. This fact may be valuable to those who wish to send seed potatoes to distant points. It is much better to send whole potatoes, small size, than to attempt to send eyes only. The names of the potatoes sent are Gardner's Imperial Blue and Richter's Imperator.

THE TONGAN BEAN.

Through the kindness of Mr. H. R. Rumsey, of Boronia, New South Wales, we have received about half a pint of these curious, odd-looking beans. See description on page 119. There are 464 beans, and they cost us $2.00; and while the supply lasts we will mail three beans to anybody who sends us 5 cents in stamps or otherwise. They are especially suited for tropical countries, where one single bush or vine will yield several bushels of edible beans in a season. The bean itself is worth something as a curiosity, as it is totally unlike any thing else in the whole bean family.

VEGETABLE-PLANTS FOR APRIL 15.

We have a splendid lot of twice-transplanted Jersey Wakefield; also a nice lot of the same and Early Summer once transplanted. A fine lot of cauliflower, once and twice transplanted; Prizetaker onion-plants—a nice lot that will be ready in about ten days; and the finest lot of tomato-plants I think we ever grew. We have the Beauty, Ignotum, Dwarf Champion, and Fordhook Early. We regard the latter as the best early tomato we have ever tested, and prices are this year the same as the others, viz., 100, 75 cts.; $6.00 per 1000.

We have also a beautiful stock of nice White Plume and Self-blanching celery-plants.

We can not sell *good* strawberry-plants at the prices many advertisers are offering them.

Now is the time to get the Gault raspberry plants. Ours wintered in splendid shape, because they were heavily mulched with old strawy manure. They are just right now to be sent out. By mail, postpaid, 25 cts. each.

ADVANCE IN THE PRICE OF WHITE DUTCH CLOVER.

This, by the single pound, will be 25 cts. instead of 20; postpaid by mail, 35 cts., instead of 30, as heretofore. Prices by the peck, half-bushel, and bushel, will be as given in the price list.

THE BEE-KEEPERS' ARMENIAN FUND.

CONTRIBUTIONS up to date are as follows:

Amount previously acknowledged		$48 00
H. G. Collins,	Ulysses, Pa.	1 00
Ruth B. Wright,	Medina, O.	1 00
Leahy Beachy,	Aurora, W. Va.	2 56
Y. P. C. U.,	Beauford, Minn	2 00
R. A. Huntington,	Linden, N. Y.	1 00
S. C. Frederick,	Elberton, Wash.	41
B. D. C.,	Wilton, N. H.	1 00
		$56 97

As we go to press we receive the following:

BOSTON, April 10, 1896.

The American Board of Commissioners for Foreign Missions acknowledges the receipt of fifty-five dollars and fifty-six cents from subscribers to GLEANINGS IN BEE CULTURE, Medina, Ohio.

FRANK H. WIGGIN, Ass't Treas.

CONVENTION NOTICES.

The Northern Illinois Bee-keepers' Association will meet at the residence of Mr. O. J. Cummings, in Guilford, three miles northeast of Rockford, Ill., on Tuesday, May 19. All interested in bees are invited. B. KENNEDY, Sec., New Milford, Ill.

The illness of the President, Mr. M. H. Hunt, and of the Secretary's daughter (Ivy Hutchinson), has delayed the holding of the Michigan State Convention. It is now decided to hold it at one of the hotels in Lansing, April 23 and 24, the first session to be held on the evening of the 23d. I have written to J. H. Larrabee to make the arrangements. If I do not hear from him in time to give further notice in these columns as to which hotel, the place can be easily found by inquiring at the different hotels. I presume it will be at the Hudson House. Dr. L. C. Whiting, of East Saginaw, will have a paper entitled, "Bee-keepers must Follow the Wild Flowers." Hon. Geo. E. Hilton will take for his topic, "The Crisis in Michigan Bee-keeping." Mr. L. A. Aspinwall will have for his topic, "Requisites for Success in Bee-keeping." The subject of the Hon. R. L. Taylor's paper will be, "Lessons in Wintering." Mr. T. F. Bingham has also promised a paper, he to choose his own topic. Mr. Heddon is just home from a sojourn in Florida, and can probably tell us something about that land of sunshine and flowers.

W. Z. HUTCHINSON, Sec.

KIND WORDS FROM OUR CUSTOMERS.

The 50-cent knife is just O. K.—as good as I could get here for $1.00. S. C. FREDERICK.
Elberton, Wash., March 28.

Inclosed find cash, for which you will please give me credit. The goods came in due time, and are all right. The Crane smoker is superb. Accept thanks for services rendered. L. F. NEYLAND.
Berwick, Miss., Mar. 28.

BURPEE'S EXTRA EARLY POTATO.

I have tried them for 5 or 6 years, and they do splendidly for me. J. H. MOORE.
Elmwood, Ill., Apr. 4.

I am well pleased with my investment in bees. I have spent with you this year $37.60, and I have got the worth of my money. I can not express my feelings of gratitude to you. I will always recommend The A. I. Root Co. J. S. MORRIS.
Lynchburgh, Va., Apr. 2.

The way you fill out a seed-bill is truly a surprise. This gives more seed than I had calculated on, as I figured on the usual amount sent in a packet; but many thanks to you. I will let some of the neighbors have a chance at you. F. S. CLARK.
Hastings, Ill., March 17.

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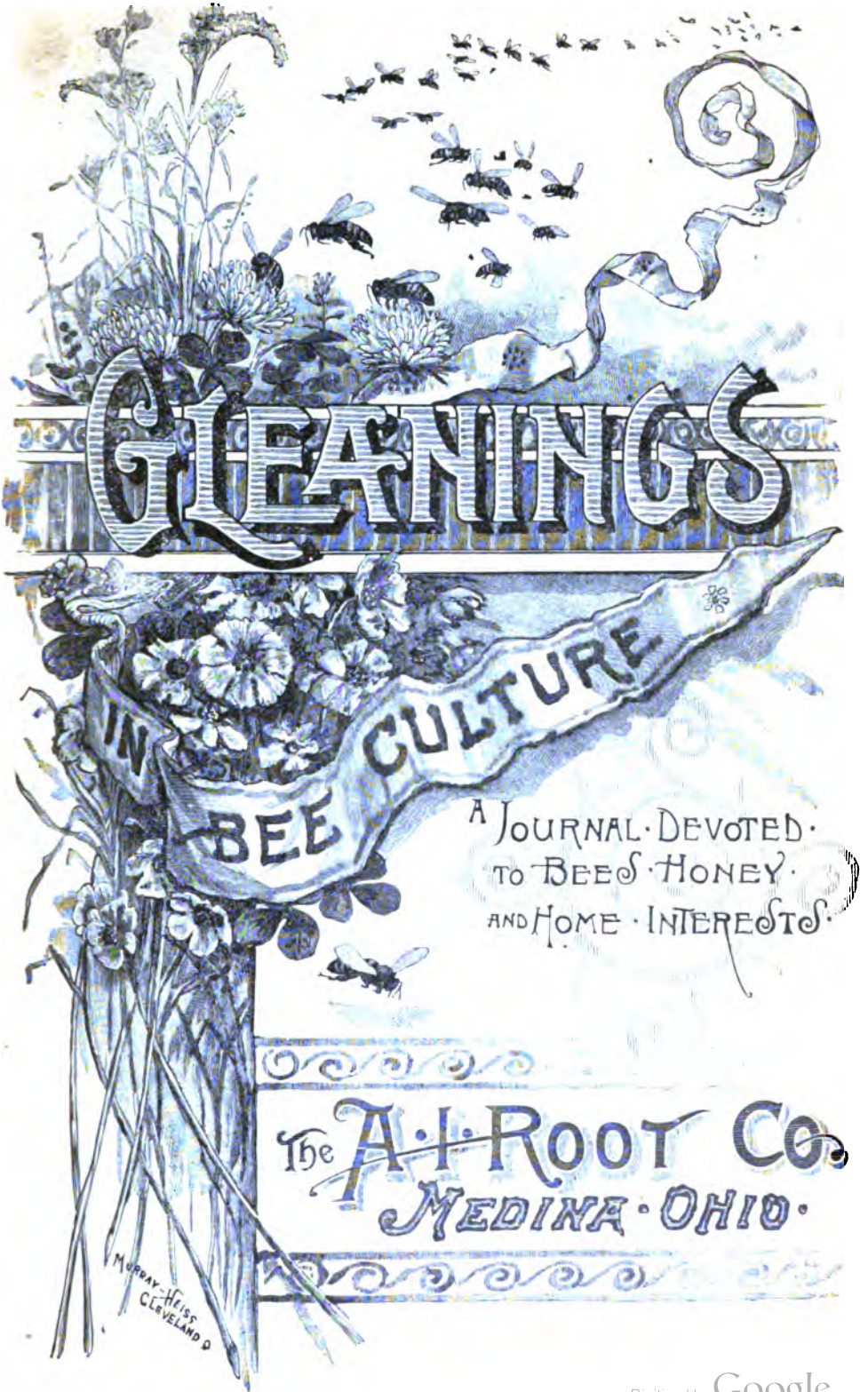
VOL. XXIV. MAY 1, 1896. NO. 9.



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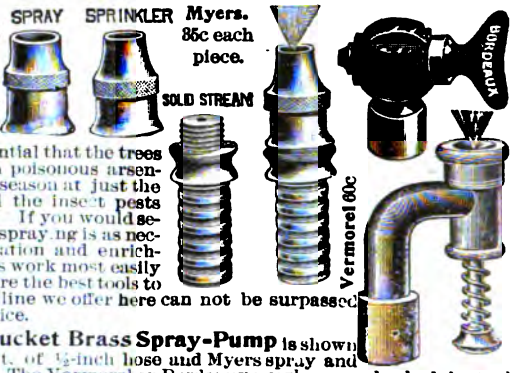
SPRAY PUMPS and SPRINKLERS.

Complete Line at Prices within reach of all.



It is becoming every year more evident that, in order to secure perfect fruit or foliage, it is absolutely essential that the trees and shrubs be sprayed with poisonous arsenites one or more times each season at just the right time in order to kill the insect pests which work so much havoc. If you would secure a crop of salable fruit, spraying is as necessary as the proper cultivation and enriching of the soil. To do this work most easily and economically you require the best tools to work with. We believe the line we offer here can not be surpassed in quality, efficiency, and price.

The Little Giant Bucket Brass Spray-Pump is shown in Fig. 1. It includes 4 ft. of ½-inch hose and Myers spray and sprinkler nozzles as shown. The Vermorel or Bordeaux nozzles may be had instead of Myers, when specified, at 25c each extra. These nozzles are shown above, half-size. The Myers is the simplest and least liable to get out of order. The aperture in the Bordeaux can be varied in size from the finest spray to a stream. The degorger in the Vermorel is very handy for clearing the spray tip of any obstruction. The Myers is regularly furnished on the bucket pumps, Fig. 1, 3, and 6; the Bordeaux on the knapsack, Fig. 2, and the Vermorel on the barrel pumps, Fig. 7, unless otherwise ordered.

The bucket pump, Fig. 1, is the latest approved type. Can also supply the Myers style, shown in Fig. 6, at same price. Pipe extension, 50c each extra. **The Moherman** Pump, shown Fig. 3, is the cheapest brass bucket pump to be had anywhere, and a good one for the price. By unscrewing the nozzle you can throw a stream, and thus use the pump for washing windows, buggies, etc. Fig. 6 shows the manner of operating the pump with pipe extension, which is necessary to reach all parts of tall trees from the ground.

Fig. 1. Price $2.70.

8-foot pipe extension as shown in Fig. 6, included with Figs. 1, 2, 3, 80c extra.

Fig. 3. Moherman. Price $2.40

Fig. 5. Fountain Sprayer. $3.00.

Fig. 2. Knapsack Spray Pump. Price $5.40.

Fig. 6. Price $3.00.

Knapsack Spray-Pump. This is shown in Fig. 2. The can is of galvanized iron, and holds 5 gallons. The pump is the same kind as the bucket pump, but is made shorter. It may be entirely removed from the can, and used as a bucket pump if desired. It is the only knapsack having an agitator to keep the solution stirred. The bucket pumps also have this feature. The lever handle may be charged to use with either hand, and one of the straps having a snap may be passed across the top, and hooked, forming a bail to carry the can by. As regularly sent out, it includes Bordeaux nozzle on 2 feet of pipe extension and 5 feet of ½-inch hose; can be furnished with copper tank at $3.60 extra. Vermorel nozzle substituted at same price, if so ordered.

Fountain Sprayer. Fig. 4 shows this valuable instrument, and its manner of use is shown in Fig. 5. The most convenient implement for potato-vines and small shrubs. The can is oval in shape, made of galvanized iron, and holds 5 gallons. It may be used with either one or two tubes with bulbs and rose. Price, with one tube as shown, $3.00. Extra tube bulb and rose, $1.00.

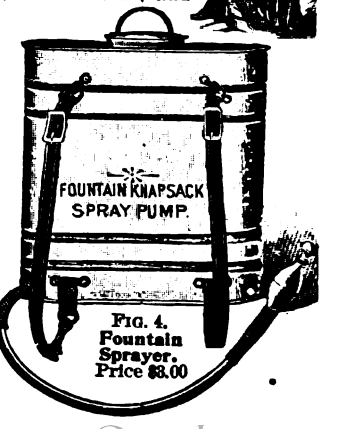


Fig. 4. Fountain Sprayer. Price $3.00

The A. I. Root Co., Medina, O.

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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
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STRAY STRAWS FROM DR. C. C. MILLER.

BEGINNERS should remember that a queen is found more easily on a fine day when many bees are afield. Fewer bees are in the way early in the season.

FEEDING outside by wholesale is done by filling combs with thin syrup, then putting them widely spaced in hives piled up where bees have full sweep.—R. C. Aiken, in *American Bee Journal.*

SWEET CLOVER is always having some new item to its credit. This time it's J. McArthur, in *American Bee Journal*, who credits it with the protection of insectivorous birds where the forests have been cleared off.

M. SEVALLE, editor of *L'Apiculteur*, reports the case of a person subject to frequent attacks of nettle rash being radically cured on receiving the first bee-sting. But he suffered so from stings that he had to keep away from bees.

AMALGAMATION seems to be opposed mainly or wholly on mistaken grounds. The latest is from a writer in *American Bee Journal* who seems to think amalgamation means to "tack on to members who do not wish it, the expense of expensive meetings." Who ever dreamed of such a thing?

"I FIRMLY BELIEVE," says Observer, in *Progressive*, "that A. I. Root has induced more people to embark in bee-keeping than all other persons or agencies combined." That's not meant for a compliment, A. I., for he thinks Skylark is not far wrong in saying that every new bee-keeper lowers the price of honey.

UNFINISHED SECTIONS are destroyed by some. Others value them highly. Hutchinson says, in *American Bee Journal*, "I have seen seasons in which I was well satisfied that a case of partly drawn sections of comb to give a colony at first meant *just one more case of finished honey.*" So he likes to have a lot of unfinished sections.

ANSWERING that question on p. 312, I should say very decidedly, print the names of those who refuse to pay what every reasonable man would be glad to pay, because the outlay was made for his benefit, and without its payment he would have had more to pay. There's been too much hushing up.

PROF. COOK reports in *American Bee Journal* that A. D. D. Wood has gone to California and expects to locate on Catalina Island two isolated apiaries where he hopes to secure pure mating of Italian and Carniolan queens. Prof. Cook thinks the mild climate makes the project more hopeful than D. A. Jones' experiment in Georgian Bay.

PLEASE CONVEY to Bro. Taylor my thanks for his commiseration, and my regret that he neglected to accompany it with an invitation to come to his house to eat fish with him when he had a good stock on hand. It might be a good thing for him and me and a certain editor to get together and have a fish-feast. [That editor stands ready to accept.—ED.]

SOME THINK that the increase of the circulation of bee-journals is a damage to the business by increasing the number of bee-keepers. I wonder if these good people stopped to think that a man doesn't subscribe for a bee-journal until *after* he commences keeping bees. It's the ignorant bee-keeper who does most harm to the business, and every new subscriber means the exchange of an ignorant man for one better informed.

ADULTERATION of honey riles S. E. Miller, who thus delivers himself in *Progressive:* "I am not now engaged in the production of honey, but would gladly pay $2 per year to the Bee-keepers' Union if it would hunt down these scoundrels and give them their just dues." [Yes, there are a good many more who would pay their $2, and more, if the Union would only take a more active interest in this matter of adulteration.—ED.]

A NEW IDEA. C. Theilmann thinks that not only should hives be unpainted, but that the outside should be unplaned. The outside roughness prevents warping and cracking, and

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the bad effects of the sun in hot weather.—*American Bee Journal.* [I'll venure to say that there is not one of our customers in a thousand who would accept unplaned hives if we were to try to push them on to them by saying they were better.—ED.]

BRO. DOOLITTLE, referring to your question on p. 303, I've always supposed that the words "prime" and "second" referred to time rather than quality or conditions. The rule is, that the old queen goes with the first swarm; and it's such an unusual thing for it to be accompanied by a virgin queen that perhaps it ought not to be called a prime or first swarm. Still, there seems a certain incongruity in calling the first swarm that issues a second swarm. I wish there were a special name for it.

CRIMSON CLOVER. Galen Wilson, in *Country Gentleman*, reports a piece sowed July 20, latitude 42½ in New York. "All winter long there has been a succession of light snows, thaws, and heavy freezes. The thermometer has been down to 12° below, and about that point several times. Surely, if any winter would kill it here it was expected this one would; but now when the first third of March has gone, there the clover stands, smiling in its verdure." [Our field of crimson is now the finest field of green of any thing to be seen around here. It wintered well.—ED.]

F. L. THOMPSON is getting balky; won't peddle honey. Well, Bro. T., that's about the way I've felt about it, but I didn't dare say so. It isn't pride. I'll tie a red bandana handkerchief around my head, and wheel dirt on a wheelbarrow on the street, to pay the man who has the gift to peddle honey; but I haven't the peddling gift; and, standing in the shadow of F. L. T., I too will say I won't. [To be frank, I stand with you two. But people are not all made like us; and the articles that I have solicited along these lines have been for the benefit of those who can peddle.—ED.]

STOP MY PAPER! I'm misrepresented on page 306. Say, Ernest, look at page 199, *American Bee Journal*, again, with your glasses on straight, and see if I rather advise getting bees by the pound. I didn't advise getting bees of a farmer, for you will see the question precludes that he "must" buy of some dealer. I said, "If the bees are to be got a long distance, so that the expressage is a very serious matter, then it may be quite a saving to get the bees by the pound." But in ordinary cases I would not advise getting by the pound. Yes, I see by your catalog you've "discontinued the pound business entirely," but by the same token you've discontinued colonies and nuclei. Shall I tell the fellow to begin with nothing but a queen? Stop my paper! [What I was quarreling with you about particularly was advising to get bees by the pound *at all*, of any one, when they couldn't be bought that way without combs. We have, it is true, given up selling nuclei and colonies; but we gave up the pound business long before.—ED.]

PAINTED VS. UNPAINTED HIVES.

When I attempt to hunt the lion to his lair, or beard him in his den, I always go completely armed and approach him with cautious and wary steps. On page 51, *American Bee keeper*, G. M. Doolittle advises that single-walled hives be used unpainted, and gives the following reasons:

> But I think I hear some one asking, "Wherein is an unpainted hive better than a painted one?" Principally in this: that, if properly covered, it will keep the bees dryer at all seasons of the year: and, owing to this dryness, they are consequently much warmer. As unpainted wood is porous, the moisture evaporates or passes through all parts of the hive, keeping the bees dry, warm, and quiet, avoiding any undue consumption of honey, as well as disease.

Now, I don't intend to kick hard against this, because it is not written for this climate; but I think the writer is wrong when he assumes that "the moisture from the bees passes *through* the pores of the wood and out of all parts of the hive." The fact is, the moisture is merely absorbed *into* the pores of the wood. If friend Doolittle will take a hammer and strike a sharp blow on the inside of one of these "dry" hives he will find that the water will fly from under the face of the hammer. In time the sun will draw this moisture through and out of the wood, but not in time to do the bees any good. Unpainted hives are a "delusion and a snare." They warp and twist and split in all directions. They may stand upright, and behave themselves like good and true American citizens, in Borodino, N. Y.; but they do not do it in this climate, or "this locality." Take a full-grown hive, with two supers or top boxes cut to fit it exactly; paint the hive, but leave the supers unpainted, and in one year the supers will not go on the hive at all. They will also be warped and twisted out of shape, and the wood broken, and falling away from the nail-heads. It is hard to tell whether it belongs to the present century, or is the wrecked hopes of a bee-keeper a thousand years ago. On the contrary, a well-painted hive—kept painted—will last a hundred years. I have not had any in use quite that length of time, but intend to test the matter as long as I can, even if I have to keep them two hundred

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years. This court, therefore, gives judgment against the plaintiff, but assures him of its most enduring friendship—after he has paid the costs.

Rambler has informed me that he intends to make a visit to this part of the country soon. What a meeting! *Skylark* and *Rambler!* Now, don't you fellows be jealous—don't tear your hair and wring your hands with envy and despair. We shall meet, whatever your agony may be. Skylark and Rambler! Well, well; we can't *all* be great men. The only advice I can give you is to settle back into your sphere and be contented with your lot. Skylark and Rambler! O Jehoshaphat! what a meeting will be there!

The California Bee-keepers' Exchange is a fixed fact—fully organized, and open for business. I think there was one great mistake made, and one or two smaller ones, which may be rectified before long. The *great* mistake was in restricting the membership to California bee-keepers. It should have been left open to any and all bee-keepers in the United States. This would really have made it a national affair at once. The eastern bee-keepers would have seen, without any undeveloped intellect at all, that what is our interest is theirs, and would have piled into the Exchange, without any compunctions of conscience or stay of execution. Why should not Dr. Miller, with his immense crops, be admitted on equal terms with Skylark? The Exchange will sell Dr. Miller's comb honey for 2½ per cent, the same rate it charges members. Now here a question stares me in the face—what benefit accrues to a comb-honey producer to induce him to become a member of the Exchange? If he can get his business done just as cheaply and securely without becoming a member, why spend the four dollars for admission and dues? The remedy is plain. Open up the Exchange to all the fraternity in the United States; charge outsiders just double the rate charged members. Even that, with only the actual and honest bill of expenses, is far better than any one can do with commission men. This would be a bait to the bee-keepers. It would be like throwing out a large piece of comb honey in a dry time to the bees. Oh how they would swarm into the Exchange!

WATER IN SUGAR SYRUP.

MARKETING HONEY; ADULTERATION; AMALGAMATION; THE PROGRESS OF APICULTURE COMPARED WITH OTHER AGRICULTURAL INDUSTRIES.

By P. H. Elwood.

Skylark, in a late number of GLEANINGS, laments the dense ignorance of bee-keepers; and, having the Rocky Mountains and his pseudonym to shield him, proceeds to hold up water to put with sugar for winter feeding. I do not object to sitting upon the dunce-block; but when Skylark refuses me the company of teamsters, stockmen, and poultry-keepers because they are so much better informed than bee-keepers I do object. The alleged superiority may exist in California, but is not acknowledged here where bee-keepers are recognized as intelligent as other agricultural classes. The assertion, that the classes mentioned agree, and are better posted than we on the feeding and care of their stock, is not true. One teamster will feed his horses nothing but oats; another, corn and oats; still another, corn and bran. One will have his grain all ground, another not. One will cut his coarse fodder, moisten it, and mix in the meal; another is opposed. One will feed and water his horses while warm; another is sure to founder his teams by so doing. One will give his horses all the water they will drink, and water frequently; another will water only at meal time, and then but a pailful, be the pail large or small, the weather hot or cold, the labor excessive or little. The same diversity exists in blanketing, in clipping, and in driving. The differences and egotistical pronunciations of bee-keepers to which Skylark refers certainly do not surpass those of good horsemen.

Pretty much the same difference in feeding and care is noticed among good dairymen. In late numbers of that excellent journal, *The Rural New-Yorker*, I noticed a series of able articles entitled "Feeding a Hen." From these articles, and from other sources, I learn there is quite as much variation among successful poultrymen as to the feeding and care of their flocks as exists among bee-keepers. If you were to ask the professors of gallina culture how much feed it costs to produce a pound of feathers, the answers (if they dared to attempt answering) would vary more widely than do ours as to the number of pounds of honey consumed in producing a pound of wax. And our answers as to the comparative cost of comb and extracted honey, quite likely, would bear comparison with theirs as to the comparative cost of a pound of eggs and a pound of flesh.

The history of apiculture is a record we need not be ashamed of. "Langstroth on the Honey-bee," written more than a third of a century ago, was the ablest and the best written handbook that had appeared upon any rural pursuit, and there are very few works at the present time that will bear comparison with it. The first volume of the *American Bee Journal* occupies nearly the same position among rural journals. The invention of the honey extractor antedated by nearly a score of years the invention of the centrifugal cream extractor; and but for the former, the latter might never have been thought of. Comb foundation, zinc excluders, the bee-escape, smokers, etc., bear fa-

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myself and Dr. Miller as examples because we do not happen to agree upon the amount of vorable comparison with agricultural inventions. The discovery of parthenogenesis, by the blind Huber, followed since by the unraveling of so many of the scientific mysteries of the beehive, makes a record not surpassed in any branch of husbandry. In literature, in invention, in discovery, or even in practical results, we do not fear comparison with any branch of agriculture. There is no need of belittling the pursuit because a few of us are not well posted.

THICK OR THIN SUGAR SYRUP.

Dr. Miller prefers to feed a thin syrup, such as can be made by the cold processes mentioned in the query. I prefer to feed a thick syrup with acid, such as can not be made without heat. My answer, of course, was based on the quantity of water in the syrup, while I infer that Dr. Miller's was based on both the syrup and the cold method of making the same. I prefer to feed a thick syrup, because it saves the bees much labor in evaporating, and also that I may be sure they will not suffer, if, from any cause, they fail to properly evaporate a thin syrup. When a thin syrup is fed late in the season (the time when feeding is done by a majority of bee-keepers) it is not properly ripened. When fed early it is usually well ripened, but always at a heavy cost in the vitality of the bees. The life of a worker bee is not measured by time, but by the work it performs; and it is not too much to say that a full quarter of the vitality of a swarm of bees is often consumed in storing a winter supply of sugar syrup. Even when done under the most favorable condition, the loss is so heavy that it is safe to say that the feeding of sugar syrup in the fall is at the best a necessary evil, and to be avoided whenever possible. The bees become aged by this period of activity, and, although they may winter well, in the spring are unable to rear brood as rapidly as colonies depending upon natural stores. The lack of brood in sugar-fed swarms has often been observed, and always explained by the supposed inferiority of the food; whereas the cause is only partially this. That close observer, Capt. Hetherington, first called my attention to the great loss of vitality connected with feeding. Cheshire also admits the same, and gives a partial explanation based on physiology.

NATURAL STORES PREFERRED.

For several years I have kept a record of sugar-fed colonies, and I have been slowly forced to the conclusion that, under present conditions, natural stores are the best. Occasionally, when honey is of poor quality, sugar stores are the safest; but such years have lately been the rare exception, and our best results, on the average, come from hives heavy with natural stores in the fall. With small brood-chambers a larger proportion of the honey will be stored for market; but where will be the gain if sugar has to be returned for winter? Even if we grant that it can be fed so early as to promote a sufficient brood-rearing to maintain the normal strength of the colony, the extra amount consumed will more than counterbalance the difference in price per pound. The hundreds of tons of honey thus yearly thrown upon the market by the exchange of sugar for honey must make some difference in present prices—quite likely more than any of us surmise.

I think it both unsafe and not wise to advocate filling up all unoccupied space in the brood-chamber, just previous to the honey-flow, with sugar syrup. The aim should be to get the brood-nest as nearly as possible filled with brood, which is very much more favorable for surplus storage than thick sealed comb-tops. But admitting that it is a good thing to fill up the combs, why not feed honey, and help some poor producer of extracted honey instead of the sugar trust? It is conceded that sugar-syrup stores will cost, properly ripened, 4 cents per pound; but the cost will be more nearly the price of the bare sugar, or 5½ cts. Honey is now quoted as low as 4½ cts. per pound in several of the large markets; and in Cincinnati, Albany, and San Francisco, as low as 4 cts. It can be bought of producers as cheaply. Boil it to prevent infection; add your water, and feed. This, of course, is dark honey, but just as good for winter, and we think we have more uniformly good than light honey. Its being dark will, therefore, make no difference whatever, as the advocates of this method say that, in no case, will any of it be stored above. Should any of it show in sections it will prove that it is not safe to use sugar in this way. Having had thousands of pounds of honey carried above, both before and after the basswood flow, and having had, in full-size brood-chambers and in full-depth frames, wide margins of sealed honey carried above after basswood, I need not predict the result of cramming the hives with dark honey.

THE EXCHANGE IN CALIFORNIA.

I am glad to see the Exchange started in California. It will help us, if they succeed in maintaining living prices. Overstocking the principal markets, combined with the adulteration of their extracted honey, whereby the number of pounds is more than doubled, has brought down prices rapidly. With guaranteed purity, suitable packages and proper distribution, California honey could all be marketed west of the Rocky Mountains, at good prices. I mention this section because it is near at hand, and free from competition from honey outside of the Exchange. As soon as the Exchange begins operations in the East, a strong effort will undoubtedly be made by un-

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principled dealers to break it up by selling at low prices honey obtained on commission from bee-keepers here. It will take some years yet before the majority of Eastern bee-keepers are ready to join a similar or the same organization. They have not yet graduated from "brush college." There is no doubt that adulteration, and the well-grounded fear of the same, has lessened the consumption of honey, and at the same time lowered the prices more than all other causes combined. The only way to stop it is, as the editor of GLEANINGS says, to fight it and not attempt to hush it up, as I fear some of our California friends have lately been guilty of doing. Silence just suits the mixers of the vile stuff, for they are continually crying, "Let us alone," as did their ancestors who went down to the sea in a herd of swine. The farmers of this country went into the fight against oleomargarine and its allied compounds, and have won a great victory. This is being repeated with filled cheese, and must be with glucose adulteration. The idea advanced, that we stop adulteration by stopping the production of extracted honey, and produce comb honey instead, is a cowardly surrender to the enemy. Comb honey, can never take the place of liquid honey for warm cakes and for other purposes. In my home market I sell ten times as much extracted honey as of comb, and this locality is the counterpart of many others. If my patrons could obtain no extracted honey my sales of comb would increase but little.

INACTION OF THE UNION ON THE MATTER OF ADULTERATION.

It is a pity that the Bee-keepers' Union, while under the efficient management of Thos. G. Newman, could not have taken up the matter of adulteration. Undoubtedly it would have done so had the bee-keepers of this country thrown all of their energies into one organization instead of dividing them between two. It will require a united front and some money to stop this business. At a time when the Union so much needs the cordial support of every intelligent bee-keeper of the United States, it seems unwise to refuse the admission of the North American, for this is really what this society is asking of us. The constitution advised by the amalgamation committee differs but slightly from the present constitution; and I can not see that it will impair the usefulness of the Union, while it will bring to us a large and valuable support. The management remains the same, vested in a board of directors selected by the votes of all of the members of the Union, as at present. The popular annual meeting, if such is held, has no control over the funds of the Union—neither directs its policy nor elects any of its officers. I can understand why the Canadians oppose the amalgamation, as they probably foresee that it will be found impractical to make the new Union international. For several years the usefulness of the North American has been seriously impaired, and its existence imperiled, if not shortened, by a long-continued quarrel between the Americans and the Canadians. I suggest that the present time would be a favorable opportunity to end this belligerency by each party consenting to mind its own business. By making the Union a national organization we shall be at liberty to attend to the question of adulteration of our products, and the enactment of such laws as may be necessary to wipe it out; and if, at any future time, the board of directors conclude that the Union can assist in any way in marketing honey, there will be opportunity to do so. It may be found practical to disseminate information as to the relative needs of different markets and different parts of the country for shipments of honey. Our weekly *American Bee Journal* is published at the present headquarters of the Union, and information as to the weekly receipts and further needs of the chief distributing-points could be quickly disseminated. In some such way an intelligent oversight of the markets might be had, of much service to honey-producers, with no investments, and at not a heavy expense. It would not do to use Canadian money for this purpose, nor would it be advisable for us to try to assist them in a work that they could do so much better themselves.

But more important than any exchange or possible supervision is the thorough development of a home market by every bee-keeper. The bee-keepers of this part of the country could easily sell all they produce in their home markets when such amount does not exceed a ton, and is put up in such form as to suit the demand of consumers. This would reduce the amount sent to the cities or main distributing-points, so that prices would materially improve.

Starkville, N. Y.

[This I regard as one of the most valuable and suggestive articles that we have ever published; and while Mr. Elwood's views on the subject of feeding may not harmonize entirely with my own, or perhaps with those of Mr. Boardman and others, I shall not be so foolish as to declare that he is wrong. I was associated with Mr. Elwood one time for nearly a week at his home, and met Capt. Hetherington at one of the Albany conventions. My acquaintance with both led me to believe that they are among the most careful thinking men in our whole industry; at all events, I venture to say that there is not another pair in the world who own and manage so many colonies. We may give their opinion of the matter due consideration.

But 't is well known that bees can be reared very cheaply by feeding: and is it not possible that waste occasioned by extra energy on the part of the bees during spring and early summer feeding, on the plan laid down by Mr. Boardman, will be more than overbalanced by the extra amount of brood, young bees, and early honey?

Yesterday I talked with Mr. M. G. Chase and U. Prince, prominent bee-keepers of this county, and told them briefly Mr. Elwood's point—

the waste of bee life consequent upon feeding. Mr. Chase admitted that it might be true; "but," said he, "I tried it last season, and I was satisfied that it paid me—waste or no waste of energy."

In discussing this problem we need to consider that bees are comparatively cheap now, and can be reared cheaply. If we sacrifice half a colony of old bees, or even a whole one, and yet secure in return a good big rousing swarm in its place, and a yield of honey besides, is not the trade a good one? Understand, I do not say such a trade can be made; but I say, *if* it can be made.

There may be something in Mr. Elwood's point, that the large use of sugar syrup might make some difference in the present prices of honey. Well, then, if honey can be bought cheaply, Mr. Boardman's plan will work just as well with honey as with syrup. Then if some of the product does get into the super it will do no harm, because it *is* honey; but the dark stuff would not improve the appearance of the nice clover and basswood section honey. As Mr. Boardman manages, however, I do not believe that sugar syrup will go above, for I believe he recognizes that there are conditions when it may do so, and is careful to avoid those conditions.

In regard to the amalgamation matter, the editorial in another column was written before Mr. Elwood's article came; and I am pleased to note that it is in harmony with what he has to say.—ED.]

DOES INVERTING DESTROY QUEEN-CELLS?

FOOTNOTES IN AND OUT OF PLACE: DR. MILLER'S COUNT ON THE T-SUPER VOTES.

By Dr. C. C. Miller.

I send herewith a letter that explains itself.

Dear Dr. Miller:—I am, I suppose, having the usual interesting and varied experience common to novices in bee-keeping. I just read all I can get hold of, and consequently get a little too far ahead, and befogged. I should like to know how you understand the following extract from GLEANINGS, June 1, 1895, page 451:

"This plan of getting the swarming date of a number of colonies on the same day, so dispensing with a watcher, is one I have carefully followed in my out-apiary for three seasons past. But I give them now but nine days between visits; and when there, instead of destroying cells one by one, I turn each of the brood-cases upside down, which *effectively and positively destroys all embryo queens*, and none can escape, and the colony is safe for nine days. This colony is swarmed on next visit; also all others like it previously inverted. The other colonies are *inverted if strong, or likely to swarm; and if they have cells sealed next visit, they are swarmed in their turn;* but if they have young cells, or none at all, they are inverted again and are safe till next visit, and so on with all hives as they advance to swarming-strength every nine days for the two or three months of our swarming season, etc. T. BOLTON."

"Dunkeld, Victoria, Aus."

Well, doctor, this is something new to me, entirely, and I have failed to find any comment on this plan in any papers or books I have read. Does inverting the hive kill all embryo queens as he says? and, further, how does he swarm them on his next visit? The next few lines appear contradictory—"if they have cells sealed next visit, they are swarmed in their turn;" perhaps you with your ripened experience can lift the fog somehow. Can they have sealed cells if inverting destroys all embryo queens?

I have now 14 colonies. I began with a few swarms last spring, and harvested some 500 lbs. of nice comb honey from 10 colonies, the best part of which was gathered in the fall. I hived a swarm on the 19th, which took me a little by surprise. There was a full gallon of bees in that swarm. I looked all through the other hives, but could find no intention of swarming as yet in the shape of queen-cells, although the hives are boiling over with bees, and full of sealed brood. There were five capped queen-cells, and one uncapped, in the hive from which the swarm issued. The bees are bringing in honey fast from fruit bloom, and commencing to draw the foundation in the supers. I often think of the hardships of having to winter bees in cellars east of the Rockies, and doubt whether I should keep many bees under such conditions.

Merced, Cal., March 20. A. R. GUN.

Now, Mr. Editor, the foregoing letter shows the need of that sometimes praised and sometimes abused thing, the footnote. On page 451 of GLEANINGS for 1895, the unqualified statement is made that turning the brood-cases upside down "effectually and positively destroys all embryo queens, and none can escape, and the colony is safe for nine days." The novice reads that with a glow of enthusiasm: "There's the very thing I've been wanting—so simple and easy! Just turn all the brood-combs upside down once in nine days, and the work is done. Why has no one told me that before?" Then our novice goes to his hives at the beginning of the honey harvest, inverts them, leaves them nine days, then inverts every nine days again, but is saddened to find nearly every colony swarming. Here's what you ought to have done, Mr. Editor: you ought to have taken out your little pencil, and written something like this: "At one time there was a good deal said about queen-cells being destroyed when combs were inverted, that being one of the strong points in favor of inversion; but so many failures occurred that the matter fell out of use, and latterly little or nothing has been said about it. The novice will do well not to put much dependence on the plan until he has first tried it on a small scale." That's what you ought to have written, Mr. Editor, and then you ought to have tucked that note on to the bottom of the letter on page 451. That's the place for it, and not several pages away.

When you send GLEANINGS to our good friend at Lapeer, gather up all you have to say on one page. That's the way he likes to have it. But in the copy that you send to Marengo, please say what you have to say about any thing that is published in GLEANINGS right at the time I'm reading it and not the next day. I don't want to be bothered hunting up afterward, perhaps having to read it all over again; but I like to know what you think about it right while it's fresh in my mind. And don't you mind what Bro. Taylor says about writing on the "spur of the moment," "without thought." He's a good man, and means well; but when he wrote what he did in *Review* about footnotes he wrote on the "spur of the moment," and "without thought." It may be all right to write on the spur of the moment. We often need spurs, and sometimes it's just as well to write while the prick of the spur is felt. But it isn't right to write without thought—neither for an editor nor for an experimenter. And,

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clearly, Bro. Taylor wrote without thought when he associated with footnotes the idea that necessarily they would have less thought or care when attached to an article than when put on a different page. I don't need to elaborate the idea—he'll admit it just as soon as he gives it thought. You just keep on making editorial comments; we all like to read them, but by all means put them where they connect most closely with what you're talking about.

Returning to what Mr. Bolton said on page 451, I don't really suppose he meant to say that, if a colony was inverted once in nine days, there would be no possibility of swarming. But that was probably understood by a good many. I'm not sure that I can clearly answer the questions of my California correspondent. I don't know just what Mr. Bolton means by an "embryo queen." If he means up to the time the young queen emerges from the cell, then his statement quoted can hardly mean any thing less than that inverting every nine days is all that's necessary without ever looking into a hive. But if he calls them embryo up to the time they are sealed, then he may mean that only unsealed cells are destroyed by inversion. Nine days is long enough time for fresh cells to be started and advanced to sealing; and if he finds cells sealed he "swarms them," which perhaps means that he makes an artificial swarm by taking away bees and brood.

If inversion would destroy all unsealed cells, then inversion every seven days would prevent all swarming, and that would be a big thing; but nearly all have, I think, given up the plan as a failure.

THOSE FIGURES.

I said Hon. R. L. Taylor was a good man. So he is; but he isn't always good. Sometimes he's bad. He was bad when on page 226 he tried to shake my confidence in myself as a mathematician. I don't know as much as I might, but I always did think I could count. Even the solace of that thought Bro. Taylor wants to wrench from me.

I've just taken off my coat, and counted it all over again. I come out of the effort a sadder (but I'm sorry to say not a wiser) man. I'm not nearly so wise as I thought I was. The one thing that I thought I certainly knew, I find I don't know; for I don't know how to count. The director of the experiment station and the editor of GLEANINGS agree on the count on page 111, *American Bee Journal*, so there can be no mistake about the correct count. I can't count it the same way, so there's no alternative—I can't count.

More than that, it seems I can't use the correct English expression. For I said T supers had a majority of votes when I didn't mean they had a majority of all votes, but a plurality. I suppose I might get out of that by saying they had a majority over any other one kind. Certainly I didn't make such bad work counting as to think that T supers had more than half of all the votes cast.

Now, Mr. Editor, I think I've been humiliated sufficiently to be teachable, and am ready to sit at your feet and learn how to count. I'd rather learn from you than from that man Taylor. It is true, you help him to expose my ignorance, but you wouldn't have done so if he hadn't begun it. So I'm maddest at him. You say six prefer T supers. I'm glad of that, for that's just what I counted. So I can count some things. "Six out of 22," you say. I don't know whether I can count that 22 straight or not. I can count 22 people, but hardly more than 17 votes, for five of the people don't tell whether they like T supers or some other surplus-arrangement best, the answer of one being "One-pound sections." But never mind about that—teach me to count a smaller number first. I count 4 for slatted supers, one for the Heddon super, 4 for wide frames, one for section-holders, 6 for T supers, and one for his own arrangement. For wide frames there are Messrs. Doolittle, Pringle, Pond, and R. L. Taylor. Please tell me how you make 6 out of them. For section-holders, J. A. Green. Please tell me how you make 6 out of him.

Marengo, Ill., March 28.

P. S.—Do you have tuition in advance? If so, send on your bill.

[If you turn to the editorials in that same issue, June 1, wherein that footnote is conspicuous by its absence, you will see that I there stated that, owing to ill health, the preparation of that number was delegated largely to others. It seemed *at that time*, at least, that I should *have* to give up all office work entirely; and it is not much wonder that I did not put any footnotes in that and the subsequent issue in some places where they were needed. If I could have had my usual health, I should have put in something at the end of the article a good deal as you have outlined. At all events, I indorse it word for word. Yes, it is what I ought to have written, but could not; and, thanks to the beef diet, I firmly believe I shall never get back to where I once was.

Regarding those figures: Now that *you* have been humiliated, you would humiliate me by aiming your darts (questions) at me instead of Mr. Taylor. Pray, did you consider me a more vulnerable target than Taylor? He made the statements that you ascribe to me: I simply indorsed them by stating that my count tallied with his. Well, if I am to father them to that extent, all right.

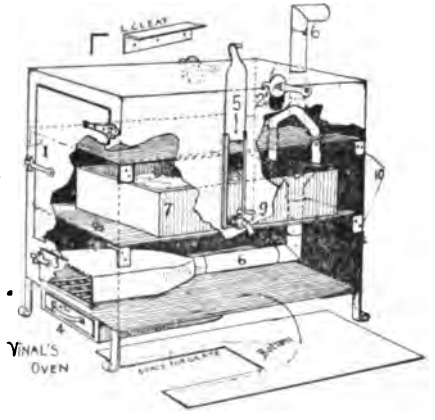
We all three count 6 in favor of the T supers. When I checked off the Question-box, page 111, of the *American Bee Journal*, I put a letter T opposite the names of the T-super men; S after the section-holder advocates; and W opposite those who preferred wide frames. In going back over my file I find 6 T's and 6 W's. Mind you, these letters were put down before I had read Taylor's article through to know what his count was; and when I found that my count tallied with his I naturally concluded that he had counted right. Well, I think so yet; but I believe I see where your count differs from mine on the wide-frame matter. I will not say Taylor's, because I do not know

what names he included. In addition to the names that you have given, I have on my tally W. R. Graham and Eugene Secor. Perhaps you did not consider Graham a wide-framer, but I did and do now; and Secor is a wide-frame man if he is any thing; and yet I can see how you can claim him for T supers. I can explain the apparent difference of count only on the supposition that your eyes were trying to see T-super votes, and that my eyes were equally eager to see wide-frame and section-holder votes. Wide frames and section-holders are practically the same thing, but in my tally I took account of wide frames pure and simple. —ED.]

VINAL'S OVEN FOR LIQUEFYING HONEY.

By Geo. L. Vinal.

Most of the honey-producers who peddle honey in jars or pails find that most people think granulated honey is mixed with something. At the low price of honey, we have to do as little handling as possible. In drawing honey from the extractor into jars or pails it will candy, and it is sometimes more convenient to label jars and pails before they are filled. Now, in liquefying it in water we loosen the labels and have to replace them. In order to avoid this trouble I had an oven made of galvanized iron, that works well with me in melting honey, either in glass jars, pails, 60-lb. cans, or bulk.



It is made 4½ feet high, 21 inches wide inside. It will hold six 60-lb. cans, besides about 200 pint Mason jars, at one time. It will burn either coal, coke, or wood. I prefer coal, as it gives a more even heat. I can regulate the temperature to any degree I wish.

It takes from six to eight hours to liquefy a 60-lb. can of solid honey, at a temperature of from 135 to 140°; pint and quart jars, from one to two hours, or longer, according to the heat.

I will try to describe the oven. It is 21 inches wide by 21 deep, and 4½ feet high. One side is a door that closes tight against a flange. It has a ventilator on each side near the top. The fire-box is one foot wide, 18 inches long, and six inches deep, made of heavy sheet iron. The grate is made of tire iron, ⅜ thick by ¾ wide, riveted together by three cross-pieces of the same. The fire-box is connected by a funnel that runs up behind and comes out through the top of the oven, and acts as a chimney. If you use it in a room without a chimney in it you can lead it through a window, or use it in a shed, or out of doors, if you like. Shelves placed on brackets are arranged so you can take them out as you like. Mine cost me about $6.50. I would not sell it for twice that amount. There is a tank that goes inside in which I melt honey in bulk. This has a faucet leading through one side of the oven. It holds about 350 lbs. of honey. As it melts I draw off and put in more from the barrel. It comes handy for several things. I evaporate about fifty gallons of maple sap to as fine syrup as one ever saw, and no danger of scorching or burning. You can bake beans, bread, puddings, pies, melt wax, and in the summer time not heat up the house.

I think it would pay any one to have one of these ovens if he has much honey to melt. My reasons are these:

1. You can set it up in a shed, or out of doors.
2. After the fire is built, it takes very little fuel and care to keep it going.
3. You can leave it and not be afraid of burning the honey.
4. You are not fooling around with water to spill and slop, and soak off labels.
5. It can be used for several things, and it will not cost much more than a boiler.

I do not make them nor have them for sale. I give my experience to the bee-keepers for what it is worth.

Charlton, Mass.

HOW TO GET GOOD PRICES.

SELLING HONEY IN GROCERIES; HOW TO MAKE IT SELL.

By S. C. Corwin.

In the summer of 1885 I got my first crop of honey in Florida, being nearly 1000 lbs. in 4¼ x 4¼ sections. I took seven 48-lb. cases (these cases were made by A. I. Root, and were glassed on both sides), and one case holding a single double tier of eight sections. This case being glassed both sides, and comb very white, it was remarkably pretty. This was my sample case to sell by. I took this honey to Tampa, calling on the leading merchants, trying to sell. All exclaimed, "How fine!" Honey in this style was new in Tampa; but all told me, "We can't sell it at your price, 12½ cents per section. We can get all the broken comb honey in cans we can sell, for 6 cts. per lb." I felt quite blue, for I expected to make the honey business my support. I at last decided to take my sample case, which I had kept wrapped up while on the streets, in my hand unwrapped, and walk the streets, feeling that it would attract attention, it being a new article in this city.

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Before starting out I made a bargain with the leading grocery firm located in the center of the city, having a large show-window to stack my honey in. They were to sell it at 12½ cents. If they sold it I was to have my pay in goods; if not sold at the end of a month I would remove it and pay rent for the window.

After making a pyramid of my honey in the window, I started out with my sample case unwrapped, feeling somewhat bashful. After being stopped several times, and complimented on the beauty of my honey, I began to feel in good spirits. I went to the postoffice and stood there awhile, cutting one of the sections and giving it to the crowd. Every one asked to buy a section. I referred all to the firm where I had left my honey. After doing the city, and giving the eight sections away in small samples, I left for home. This was Tuesday. The next Tuesday I received a letter saying, "Send 500 sections at once. We are all sold out."

The following year I tried them on extracted honey; but they said, "We can buy good *strained* honey for 50 cents per gallon, and you ask a dollar. We can't sell yours." I tried the same game of leaving it on sale; but instead of putting it up in old syrup-barrels I took *new* one and five gallon cans; sent to A. I. Root, and had labels printed large enough to cover one side of a five-gallon and to wrap around the one-gallon cans. These labels had a cut of the Novice extractor, and told what extracted honey is and how taken, and my name and address. That firm still handles my honey, and uses over one ton a year. I let my extracted honey remain in the hives till all sealed, and sometimes for two months. It is quality, not quantity, that I am after. This is the kind of honey that keeps for eight years as good as new, and never candies. In this time other firms have bought my honey, and I find no trouble with good goods and a guarantee of purity on every package, to sell clean every year.

Sarasota, Fla., March 26.

STATIONARY OR LOOSE T TINS.

A REPLY TO MR. HILTON AND OTHERS,

By Miss Emma Wilson.

On page 218 Mr. Hilton says, "I can see no advantages in the loose tins that the stationary tins do not possess. With me a super is more easily filled or emptied with stationary tins than with loose ones, especially when the thumb-screw device is attached." I am perfectly willing to let Mr. Hilton use stationary tins if he likes them best, but I can not see how a super can be either filled or emptied easier with stationary T tins. I am very sure I can fill them very much quicker and easier with loose tins, and I have filled a good many both ways.

When I first began filling the supers I used to put in eight sections, four on each side of the super, first thing, and that practically made the tins stationary for the rest of the sections, and it took me very much longer, and was a good deal more troublesome to put in the remaining sixteen sections than it takes me now to fill a whole super. Yes, sometimes I fussed a good deal longer in getting one section in its proper place than it takes me now to fill a whole super; for by the present way there is never any trouble whatever.

You are mistaken, Mr. Editor, when you say on page 218 that I put in a T tin before putting in the first row of sections. No T tin is put in until one row of 6 sections is in place. Then in less time than it takes to tell it, the T tin is slipped under the whole row. As I have already described this method of filling (page 179, 1895), it is not worth while to repeat it.

I should like to ask Mr. Hilton if he has ever tried to fill supers in this way. If he has not tried it he is hardly competent to judge which way of filling is easier. I had a good many years' experience in filling them the old way, and thought I knew all the kinks. I can't say I ever enjoyed filling them; but I should feel a good deal worse about it now if obliged to go back to any of the old ways.

Now as to the thumb-screws: In place of them we use a wedge, which I think answers the same purpose.

I can not understand how stationary T tins make it any easier to empty a super. If the T tins come out of the super with the sections I can not see how they are any obstruction; and if they are glued to the sections, and are stationary, they must make it harder to empty the super; and I know ours often have to be loosened. In any case, I don't see how being stationary can make them stick any less.

We can remove the full sections from the supers during the harvest just as well as if the tins were stationary, and have often done so. This, however, we never do during a good honey-flow, but only when honey comes in slowly.

Now as to cleaning the T tins, of which the editor speaks, quoting Mr. Harry Lathrop. I, like Mr. Lathrop, have scraped a good many with a knife, but that was before I knew any better way of cleaning them. You don't catch me scraping any more; and I don't believe Mr. Lathrop would either after trying cleaning them with hot water and lye. The editor says, with hot water; but hot water alone is no good. Now, I admit that T tins can be scraped with a knife; but it's a disagreeable job; and look at the time it takes. I've spent days scraping the same amount of T tins that I could clean in a very few hours with hot water and lye. And then, compare the tins when finished. The T tins that were cleaned with hot water and lye are just as clean as when new. They may not be as bright, but they're just as clean. Those that are scraped are not—at least, I never succeeded in removing every trace of propolis; and while scraping helps very much, it does not entirely clean them.

Marengo, Ill., Mar. 27.

[As to my statements concerning your ways of working, I stand corrected.—ED.]

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"GOOD-MORNING, Mr. Secretary!"

"Why, bless you, good-morning, James! Glad to see you back; but it seems to me you did not spend so much time on that outing as you planned. Camping in the river bottoms and among the tules did not agree with you, I warrant; and you were glad to return to the comfortable ways of city life. Olin is back too, I suppose?"

"Yes," James replied; "we both returned. The weather, the boating, fishing, gunning, and camping were all delightful. We were enjoying it immensely when, in river parlance, we ran into a snag, and the result you see before you. I am here."

"Well, James, I have been in a boat several times up the Sacramento, and have found those snags a troublesome factor; but I can not imagine how a river snag could wreck a row-boat with two wide-awake young fellows like you and Olin Fursman in command. I shall have to call you to an account, and expect an explanation."

"While our boat was not wrecked, Mr. Hopson, I agree with you that we ought not to have run into a snag; but you are aware that a great many kinds of snags are in the river. Some stick up so plain that they are easily avoided; others are hidden, and we are liable to run into them before we know it; then there are others that are enticing, and we get into them through curiosity or by a desire to experiment with things we know not how to manage. The snag we ran into was of the latter order, and a land snag at that."

"Worse and worse, James; but wait a moment. I wish to post this bulletin for our Sunday meeting on the bill-board outside, and then I will listen to your story."

Mr. Hopson, the acting secretary of the Sacramento Y. M. C. A., was a cheerful man, and went about his duties humming a popular gospel air. His readiness to lend a helping hand here, and a word fitly spoken there, was exerting a good influence upon the young men who daily dropped into the rooms. When his work was completed he sat down besides James Fiske and said, "Now, James, I am ready for that explanation about land snags."

"As you are aware, Mr. Secretary, Olin Fursman and I fitted our row-boat with a camping-outfit, and designed to spend four weeks up the river, and here we are back again in less than two weeks; and I do not wonder at your surprise. During the first six days, we enjoyed every minute—caught fish, shot ducks and other game, and lived upon the best that land and water could afford. We usually found good camping-places on shore. When we did not, we slept in the boat. We rounded Lone Tree Point Saturday afternoon; and about one mile above, we found a delightful camping-place in a grove of sycamores, and proposed to spend Sunday at this place. We had labored at the oars so much that we looked forward to a day of rest, with no little pleasure; then we had books and papers we had scarcely looked at, and anticipated many hours for reading. There was an old deserted cabin near by, and we discovered it had been formerly occupied by a bee-maker."

"No, James, you mean a bee-tender, or honey-maker," said Mr. Hopson, in a tone of superior knowledge.

"It had *bee* to it, sure enough;" said James, "for we discovered an old pile of empty bee-boxes, and three boxes that had bees in them; but we merely made a reconnoiter that evening, and arranged our camp near the cabin, under the sycamore-trees. We were usually tired enough to sleep sound and to have an excellent appetite for our morning repast; and the rule was not an exception in this camp. When we were preparing our breakfast that Sunday morning, Olin suddenly proposed that we have some honey for breakfast. 'This is an old deserted ranch,' said he, 'which nobody owns, and we might as well have honey on our flap-jacks as not; then we can get enough out of the hives to last us several days. It's a go, Jeems. Hurrah for the honey.' I told Olin we might get more stings than honey, and then there might be an owner who would be vexed at the liberties we were taking with his property.

"'Don't believe there has been any one here in two years,' exclaimed Olin; 'just see the big weeds, the willows, and water-motors that are

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growing here. Then there are only three old tumble-down boxes that have bees in them. To get the honey is just as easy as rolling off a log. My uncle has told me lots of times how he and the soldiers used to do it, when on the march. Just wrap the hive in a blanket, and plunge the whole business into the river, and in ten minutes we can have some delicious honey.

"DO YOU FEEL THAT HONEY TRINKLING DOWN YOUR THROAT, OLIN?"

I almost feel it trinkle down my throat now. Here you are,' said he, as he hunted up a gunny sack and ripped it open so that it would spread well. The problem seemed so simple, and he went about it with such vim, that I put aside my scruples about the right and wrong of the transaction, and we approached the hive that was only a few yards from the river. We tramped the weeds down in the rear of the hive, and spread our improvised blanket. The morning was somewhat foggy, and the bees were not flying very numerous, and these did not seem to realize that enemies were abroad.

"The hive was carefully placed on the blanket. 'So far so good,' said Olin, as he grasped two corners of the blanket and I the other two; 'now steady for the river;' the hive was real heavy, and we had taken but a few steps when there was an ominous tearing sound, and the hive went through the old gunny sack to the ground, with a thud. If there was but little apparent life in the hive before, the inhabitants made up for it now. I have heard the expression, *there's millions in it*, but never realized it so tangibly as now, for it seemed a million of bees that made a charge upon us, and our retreat was upon the order of getting away quick. Olin made a dash for the old cabin, some rods away, with a whole cloud of bees for an escort, and his arms gyrating about his head. Seeing an opening, partly hidden by weeds, under a pile of old bee-boxes, I plunged into it. The bees charged in force upon the part of my pants that did not get in, and, having on thin clothing, the charge was effective. Each *bee was like a bullet*, and bound to go clear through me if it could. I made a further desperate lunge, and the pile of boxes was unequal to the upheaval, and they tumbled in every direction, leaving me again without protection. I scrambled through the weeds as best I could to the cabin, where I found Olin under the blankets. 'Blankets for two!' I shouted, and I enveloped myself as promptly as possible. The bees that followed us persistently fought us, even in the cabin. It was not a pleasant situation, muffled in blankets, and suffering pain from swelling punctures on face, hands, and various portions of the body. We could not endure our imprisonment, and simultaneously made a break for the river, with blankets over our heads. Here we washed and scraped off the stings, and during the process I asked Olin if he felt the *honey trinkling down* his throat. His nose had a growing protuberance on it; an eye was in a fair way to swell shut, and his lip protruded abnormally. His reply was a dangerous look, and I did not press my inquiry. My face was not one whit more prepossessing than Olin's; and, upon the whole, we were a gruesome-appearing couple."

To be continued.

"STRAINED" FOR "EXTRACTED."

WHO IS RESPONSIBLE FOR THE TERM?

By Elias Fox.

In regard to the word "strained" honey being used instead of the proper word, "extracted," it is my candid opinion that the producers themselves are largely if not wholly to blame. In the first place, it is the ignorance of the consumer, and the producers themselves are to blame largely for not educating them as to the difference between "strained" and "extracted" honey. Every one knows that, in the days of our forefathers, the only liquid honey produced was by straining a conglomeration of honey, comb (old and new), bees, brood, and pollen, and the product was called "strained" honey; and thousands of people to-day who called for strained honey don't know but the extracted honey is produced in the same way. The majority of them never saw or heard of an extractor; and the larger portion of those who have heard of it think it is a machine for hastening the old method, and the bee-keepers have allowed them to remain in the dark, and

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even allowed the word "strained" to follow their extracted to the city. When neighbors call for strained honey, why don't you tell them that you haven't any, but that you have "extracted," which is much better? and explain the difference to them; invite them to visit your apiary at extracting-time; show them the whole manipulation, from taking the combs from the hive to filling the five-gallon cans and boxing them for shipment. Invite them to eat freely of honey during their stay. This is about the only means of convincing the public that your honey is pure, and that it is extracted instead of strained; and whenever a commission man or any other dealer is known to use the term "strained" he should be corrected, and then the word will soon be one of the past; and the sooner this is accomplished, and purity guaranteed to the consumers, the sooner "extracted" honey will find a better demand, and at better prices, remembering that the proof of purity will have as much (or more) weight as the word "extracted."

S. T. Fish, p. 16, has a first-class article on the importance of having a neat package for comb honey, and this should apply with equal weight to extracted-honey packages. The fact of using old oil-cans would be as detrimental to our pursuit as to return to the old system of producing strained honey (bees and pollen).

I notice a report of J. Z. Rhodes, of Verndale, Minn., in the *American Bee Journal* for Jan. 2, which states that he began the season of 1895 with 39 colonies, and increased to 150, and harvested 3000 lbs. of comb honey and 3000 of extracted. He claims to be a beginner, and that he knows but little about the business. I advise him to remain in the dark, as he will not meet with such success as this after he is out of the A B C class, especially these drouthy seasons. ELIAS FOX.

Hillsboro, Wis.

FULL SHEETS OF FOUNDATION IN SECTIONS.

THE MIDRIB OBJECTIONABLE TO CONSUMERS; A VALUABLE ARTICLE.

By John Handel.

Is the too liberal use of wax reducing the consumption of honey? This is a matter worth inquiring into. Wax in comb honey is an adulteration; and the consumer who has not yet learned how to swallow it is not easily convinced of the fact that only a small proportion is artificial. The stack of cuds left after eating a small chunk of comb honey will arouse his suspicions; and upon inquiry he is satisfied that the article has been tampered with; and the small-quantity argument (1 or 1½ per cent) will not down, any more than the wax itself, even if shown that the adulterant is higher priced than the combination; consequently, consumers, once satisfied that the solid structure, or comb, is doctored up by us, how can we expect them to have any faith in the filling? All but those who are wilfully blind will notice the so-called "fish-bone," as the knife or teeth pass through this artificial center of comb honey, even if it be "extra thin" foundation. Therefore, while trying to deceive others we may be injuring ourselves.

NOTHING NEW UNDER THE SUN.

After reviewing the ground that bee-journals have gone over in the past year I find very few short cuts and easy methods offered—nothing to encourage us to make an extra effort this year. On the other hand, it appears to me as though every correspondent took a special delight in "knocking the stuffing" out of the most promising new features put forth the year before. Those automatic contrivances, which are watched with anxiety by the sidewalk bee-master, were kicked about until of late I see nothing of them any more. Yet how nice it would be to have a hive built on the principle of the "penny in the slot" machine! We could then "push the button," and the bees would do the rest.

While dealers and commission men are getting a "roasting," some of us might as well look up the other side, and thaw out some of the producers. In the past ten years I have produced, probably, seventeen tons of comb honey. About 80 per cent of it was shipped to a distant market, some to commission men; but most of it was sold to dealers. Out of this whole amount sent, I had a loss of less than 50 lbs. from breakage; 19 lbs. was stolen while in transit. My returns (when the price was not agreed upon) were always satisfactory. But my success in this line led me to speculate. I bought a lot of honey from otherwise reliable and honest producers, and, judging from what I could see through glass, perfectly competent in grading honey. So I shipped it without opening the crates; and for that reason, or some other, that honey broke down, leaked, got wormy, and they said all but the front row (that next to the glass) was dark. I wrote and told them what it cost me, and asked them to try to get that much out of it. The amount was sent me, but they said it was not worth it, and that they did not want any more honey from me.

DRAWN COMBS IN SECTIONS.

Dr. Peete, p. 102, expressed it exactly when he said that sections put on a hive a second and third time look like old nest-eggs. I too have learned the value of drawn comb; but the labor of extracting the honey from the partly filled sections is what I dread. And right here I would ask B. Taylor how to overcome this (to me) difficult task. Does he uncap them with his handy comb-leveler?

While extracting those partly filled sections a great many of the combs break out, evidently because I "haven't learned the trade yet" (see page 103). Is there any other advantage claimed for that "bottom starter"?

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Most colonies, if managed rightly, will build down to the bottom of sections; and if a colony insists on leaving a bee-space I find it less trouble to pinch the top starter from that queen than to put a bottom starter in all the sections. Now, instead of extracting the honey from partly filled sections, I break or tear the cappings, and also the cells, to within about half an inch of the center, or base; then if some colonies are short of stores, a super full of those dripping sections will make them hustle while extracting, trimming, and keeping robbers away. Or if those sections are left a few days in a warm damp atmosphere, nearly all the honey will run out; then let the bees do the rest. Then to make this drawn comb go as far as possible, I cut it out of the old sections, divide it in two or three pieces, then dip the long side of each into melted wax, and quickly press in the top of a nice clean section.

STAINED SECTIONS.

How to prevent bees from staining and varnishing the sections has puzzled my mind a great deal. Smoothing the way for the bee that is loaded with propolis will accomplish much; and I have an idea that every thing being smooth inside of a hive very often saves that bee the trouble of gathering a load of varnish. But the numerous little cracks, and uneven surface between sections, offer great inducements to the little plasterers, especially along toward fall. Accurate fitting, and wedging sections in tight, will remedy the matter to some extent on the inside of sections; and if Mr. B. Taylor will allow me to use his expression, I will say that, whoever allows his bees to come in contact with the outside of sections, "has not yet learned his trade."

PREVENTION OF PARTLY FILLED SECTIONS.

Like Mr. B. Taylor, I give my bees plenty of room, so as to discourage them from swarming during the honey-flow; but instead of "piling on an unlimited amount of supers, with sections, at or near the end of the flow," I put on super-holders fitted with top-bars only. A set of top-bars, or lath, with ¾-in. starters, are fitted over the super-holder, and a set of pattern slats to the bottom. Should the bees fill this entirely with honey, they of course will fasten the combs down to the pattern-slats. But they will peel off; then cut the end of the combs from the holder, and you have nice half-depth combs that will sell or extract easily. I have even shipped them (before cutting them out), and they sold like hot cakes, probably because it was in a new form.

Savanna, Ill.

[Very many, and perhaps a majority of our honey-producers, use full sheets in sections, and it is no doubt true, as you intimate, that such sheets cause more of a fishbone than the narrower starters. We as bee-keepers do not object; but consumers, not knowing any thing about foundation, jump to the conclusion that such comb honey is "manufactured." There is now chance along the line of making use of thinner foundation; and the new process gives us hope that we can use such an article, and yet such sufficiently strong so that bees will not tear it down.

I have for some time advocated supers in which compression of the sections is a feature. On my first bicycle-tour I observed that the bee-keepers who used crates or supers that would squeeze sections tight had less propolis along the edge of the sections than those who did not use compression. To secure this more perfectly, the section-holder super was devised, with wooden separators, and wide enough to reach the whole depth of the section.—ED.]

GOVERNMENT AID TO BEE-KEEPERS.

THE KIND OF ASSISTANCE NEEDED, AND HOW TO GET IT.

By W. K. Morrison.

There is no more vital question to bee-keepers than this: "What can be done to advance the sale of honey?" I shall make the statement without fear of successful contradiction, that no people are so prejudiced against honey as the Americans, and for good reasons. The newspapers, in season and out, have persisted that the American bee-man is nothing but a cute rascal. There is hardly an "influential" paper in the country that has not given space to the "Wiley lie," or something like it. It should be noted, too, by all our fraternity, that one reason why Prof. Wiley succeeded so well was that he was a government official, supposed to be well posted on agricultural matters. I am also sure of another thing, which is, that, had Mr. Wiley made similar assertions in regard to bee-keepers while in the employ of either France or Germany, suitable punishment would have been immediately dealt out to him. In truth and in fact, his reputation would have been damaged for life. Bee-keepers who live in the country have little conception of the extent to which public opinion has been led astray in this matter.

Another thing, many people have been led to put up their honey in bottles marked "extracted." Now, if such would only inquire among their city friends they would find out that "strained" is what people want. The "extracted" suggests machinery. When I bought my "Cowan" I found a strainer attached to the machine. What was it for, Mr. Editor? On a close inquiry you will find that lots of people "like the good old strained honey." My advice is to put neither "strained" nor "extracted" on your packages. Sell it for honey. But just here somebody says, "What has this to do with the government?" so I must change.

One reason, and the great reason, why the bee-keeper fails to sell his honey at a reasonable figure is that people do not understand what a valuable product he has produced, so it becomes his duty to educate the "masses." I propose, however, that we *compel* the recogni-

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tion of our business by the government, who will help educate. Senators and Representatives know nothing about the pursuit, but they are doubtless willing to learn a little. At the same time, we might take the newspaper men under our wing and give them a bagful of news. One of the features of European life is shows or exhibitions of many home pursuits. Lately Americans have taken very kindly to similar affairs at home, and we now see poultry, dog, horse, and even cat shows an annual "function." Now, does it not seem rather strange that the cat-men were able to hold the attention of the public, and yet no effort made to advertise the industrious bee and its delicious product?

What I now propose is that we have a national bee and honey show, and that we hold the first exhibition in the city of Washington, in the month of September, 1896, and intrust the local management to the officials of the United States Agricultural Department. It would serve to enlighten them in regard to the value of bee culture, and stir up their energies. The opportunity ought to be taken to have an immense sale of honey after the show. The honey-dealers of Washington, Baltimore, Philadelphia, and New York would need to be there, and buy their honey on the spot. No "sight unseen" about this method. My reasons for selecting Washington are that we could secure more help there, as our cities do not contain, as a rule, many large bee-keepers. Another thing, it would secure a support from Congress that can not be had otherwise. In fact, the officers of the government could shut their eyes no longer to the importance of the bee-keepers' art.

Many comments have appeared from time to time in regard to the unjust treatment accorded the apiarian interest; but I think we may blame that on our laxity in asking for help. A large acquaintance with the members of both houses of Congress leads me to say that there are but few of them who would not vote money freely to assist us, provided we are true to ourselves. All they ask of us is that we bee-keepers show what we can do. Cities often throw out inducements for a good show, and Washington is not behind the age in any respect.

Over every entrance, and placarded all about, would be an inscription reading like this: "Ten thousand dollars reward to any man who can make a piece of comb honey by machinery, or who can produce any proven to have been made by any means other than bees." Our supply-dealers would all make a good show at such a display. This alone would assist the public to a better knowledge of the bee and honey trade. Persons having large quantities of honey for sale would send it to the show to be sold. Suitable displays of all apiarian inventions would attract many observers. There should be a good display of honey-flowers. The bottle-manufacturers would not forget us. Methods of using honey would not be overlooked, and so on. The North American could be held there, with a chance of an audience. Last, but not least, every bee-keeper who intended visiting the show would send a letter to his Congressman, telling him of his anticipated trip, inviting him to meet him at the show. I see no reason why bee-keepers should remain in the background any longer.

Devonshire, Bermuda.

[Mr. Morrison makes a good point when he suggests that we need to secure the assistance of the general press to educate consumers in regard to our industry. The press, through the instrumentality of Prof. Wiley, did us a most irreparable damage, and this same agency is the one to repair the damage, if done at all. I believe friend Morrison's plan is feasible, and GLEANINGS is ready to assist in any way possible; but I would suggest that the plan be laid before the Bee-keepers' Union or the North American, or, better still, before the new Union that may be organized. If sanctioned by such a body it could then be taken up by the bee-journals, and pushed for all there is in it. With a big bee and honey show in Washington there is no question at all but that the newspapers of the country would give us long write-ups; and such notices would go a long way to counteract the Wiley "pleasantry."

If the other industries of the country can afford to have such shows, the bee-keepers of the land ought to have them; and if we can not secure the funds from the national government to defray the expense, let the Union take hold of it, and, if necessary, disburse some of its funds already in the treasury. I can see no way in which money could be more judiciously expended than in that line. The supply-dealers of the country will be willing, I think, to do their share.

I should like to have this subject discussed, so that it may, after proper deliberation, be laid before some national organization of bee-keepers.—ED.]

A CAPITAL METHOD OF SELLING HONEY DIRECT, WITHOUT SOLICITING OR PEDDLING.

Some years ago, when I began to produce honey by the ton, I relinquished the home market, leaving it to small producers, although I have still a considerable local demand. I have not offered a pound of honey to any one in this town of 8000 inhabitants for over ten years, and I have never since been able to meet the demand without purchasing from others. How have I found my customers? you may ask. This is how: I took up "Bradstreet's Report," and turned to Manitoba and the Canadian Northwest. In every city, town, and village I selected and listed the names of grocers, druggists, and fruit-dealers, taking great care to enter the names of none but those who were rated as "good." To each of these I mailed a price list (one of which I inclose, which you will notice is dated seven years ago, and is the last I needed to send out). From that day to the present I have not had to seek a customer.

Owen Sound, Ont. R. MCKNIGHT.

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FRANCE'S REPORT FOR THE LAST FIFTEEN YEARS.

AN INTERESTING SERIES OF FIGURES; THE PAST SEASON SO POOR THAT, INSTEAD OF FEEDING, THEY KILLED THE BEES.

By E. France.

In glancing over my records for three or four years I find that we have not done as well as we did in former years. In looking back I find I have records back to 1877. We always got some honey—enough to winter the bees, and some to sell.

In 1880 we had 124 colonies; extracted 6000 lbs., and called that a poor year. We let out on shares about 50 colonies. In the spring of 1881 bees wintered very badly, for it was a very hard winter. The partnership yard went down from 60 to 3 weak colonies. The cause of the loss was a location too windy, a long winter, and a too free use of the extractor. We got, however, that year, 4000 lbs. extracted. We had, in the fall of 1880, all told, 220 colonies, but all were extracted too closely; and, having had a hard winter, we were obliged to feed heavily in the spring of 1881. We saved only 75 colonies, and increased to 157 in the fall. We extracted 2000 lbs., but were careful to leave the bees enough to winter on. By this time we had learned that it did not pay to extract too closely. About this time we began to get our bees into chaff-lined hives, and we packed all the bees with chaff cushions and straw to the best of our knowledge, all out of doors.

In March, 1882, the weather was open, and up to that time bees had wintered well. My record does not say how many colonies we had that spring; but we took 13,000 lbs. of extracted honey, and went into winter quarters with 295 colonies.

In the winter of 1882-'83 we lost very few; but they deserted badly in the spring. We got into working order with 211 colonies. That was a rainy spring. White clover was a big crop. We commenced to extract June 26. Basswood began to blossom July 1, and was done the 23d. It rained so much during the basswood flow that all the bees got from it was a winter supply. The amount of surplus was 22,059 lbs. I have no record of the number of colonies in the fall.

In 1884-'85 the number of colonies was 291; fall count, 455; extracted honey, 31,283 lbs.; comb honey, 206 lbs. This season was followed by a long and cold winter, during which there were 40 days of zero and below. It was first below zero Nov. 24; 12 below the 25th. The coldest day was Jan. 22, which was 34 below. January was a very cold month—15 days below zero. Bees had their last fly Nov. 15. Feb. 3, the temperature at noon was 40. Bees came out some, and many fell on the snow. We got through the winter and spring of 1885 with 321 colonies out of 516—good, bad, and poor. Surplus extracted was 30,079 lbs.

The winter of 1886-'7 was a pretty cold one—much snow, followed by rainy spring and muddy roads. We sold one apiary of 50 colonies, shipping them to Broadhead, Wis. From these 50 colonies was taken 10,000 lbs. of honey that summer. We started in the spring with 395 colonies; increased to 507 in the fall, and extracted ourselves 42,489 lbs. After the honey season we had dry weather, which killed out the white clover except in low ground, and but little left there. In the fall of 1886 we had 507 colonies, of which we lost 97 as follows:

Home	yard, fall,	66;	spring,	61;	loss, 5
Cravin	" "	113;	"	104;	loss, 9
Burney	" "	76;	"	74;	loss, 2
Watters	" "	89;	"	68;	loss, 21
Adkins	" "	94;	"	45;	loss, 49
South	" "	69;	"	58;	loss, 11
Total	- - -	507;	"	410;	97

We had, therefore, 410 colonies to commence the spring of 1887.

From the above report it will be noticed that there was a great difference in the winter loss. This was caused by extracting too much from the Adkins, Watters, and South yards. Those three yards were extracted the fourth time. No other yard was extracted more than three times. There was taken from the Adkins yard, June 26, 1464 lbs.; South yard, June 25, 1368 lbs.; Watters yard, June 24, 1829 lbs.—making a total of 4661 lbs. It is plain that we lost the bees by extracting too late, as it was just at the close of the basswood season. But after all that, 4661 lbs of honey was worth, at 6 cts. per lb., $279.66. How much more would the bees have been worth? We got the cash for the honey, and had 410 colonies of bees left, and the seasons have been very poor since, so I think we are just as well off. But it was bad management that caused so great a winter loss. Bees, to winter well, must have plenty of *good feed.*

Owing to the dry weather in the latter part of 1886 we got only 5000 lbs. of honey from our 410 colonies, spring count. We went into winter in good shape.

In the spring of 1888 we had 431 colonies. It was wet; but owing to the dry weather the previous year, we got only 11,629 lbs. of extracted, 195 comb, and increased to 588 colonies.

In the spring of 1889 we had 531 colonies, and secured 26,070 lbs. of extracted honey. This was a dry summer, and there was no white clover for the next year.

In the spring of 1890 we had 649 colonies. The winter was mild, and bees wintered well. It was warm in March and April, and cold and dry in May. The last of May and first part of June was wet and cold. White clover was scarce. June was a wet month, and no clover honey, and very little from basswood. We extracted, however, 3125 lbs. Of colonies, fall count, we had 661.

March, 1891, was a cold month, with a foot of

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snow. The first half of April was wet and cold. April 20 all the bees were looked over, and fed some. May was dry — too dry for clover, and we had 12 frosts in May. June gave us some rain. Colonies, spring count, were 580, and the honey crop was 30,000 lbs.

In the spring of 1892 the number of colonies, spring count, was 620. That was a poor year for honey — too wet; very rainy season; thousands of clover-stalks came up from seed, and grew finely. The bees barely made a living, getting nothing from the clover. July 11 was the first day that we could open a hive without using a tent. The bees got a little honey from basswood, but not enough to winter on. We fed 14 barrels of sugar, and it looked as if 1893 would be a good honey year, and that we should have to save the bees if possible, so we fed and fixed them up as well as we knew how.

The winter of 1893-'4 was a very hard one — deep snow, and a very cold average. The condition of the bees was not as good as during the previous year. It was cold and wet through March and April. Bees had to be nursed carefully to save them. May 1, queens quit laying; no uncapped brood in the combs in any of the colonies; cold wet weather until the 8th of May; then it turned off warm, and egg-laying commenced again. We lost a great many bees. When we got into working order we had 323 colonies alive, some of them weak. Clover was very abundant, but there was not much honey in it until June 20. Then we had a busy time until July 20, when the basswood was finished; and by that time the clover was all dried up. What young clover there was from seed was dead. In 1893 we extracted 39 245 lbs. of honey, besides taking honey in brood-combs from the home yard — over 2000 lbs. — that I put into our comb-room for feeding, if it should be wanted. All the bees went into winter quarters well supplied with honey.

In the spring of 1894 we had 426 colonies — spring count. May 28 the bees were in good condition, but there was but little to gather. The drouth killed the clover the previous year; cold and hot by spells, getting too dry for grass, and it was a very dry summer. Bees got a winter supply from basswood, and we extracted 3700 lbs.

In the spring of 1895, owing to the very dry weather since June, 1893, nearly every thing was dried up. There was no hay that year, and oats not a fourth of a crop, and very little corn. Small-fruit plants died. We had four acres of blackberries, and all died—not a single berry last year. We had a late frost that killed the most of the basswood-blossoms. There was no clover. We fed some to keep the bees alive, in hopes they would get a winter supply from basswood. Vain hope! They got some; but when fall came we found ourselves obliged to feed heavily or let the bees starve. We bought 7 barrels of sugar; fed that, and killed 160 colonies, and let the other bees take what little honey they had, saving the combs. I do not know how many colonies we are trying to winter — about 300, more or less. Why did we not feed all? First, want of money; second, I didn't think it would pay. Clover is all dead — no prospect of a honey-crop next year, and the case is very different from what it was in the fall of 1892. Then there was a big crop of clover on the ground. It looked then as though it would pay to feed, and it did; but now every thing is dried up. If it is as dry next year as it has been the last two years, there will be nothing raised about here. Wells are giving out in all directions. Well-drillers are busy sinking wells deeper. One man had a well 80 feet deep. He bragged about his well being so strong; but it gave out. He has drilled 120 feet below the bottom, making the well 200 feet, but no water yet. My nice large Dutchess apple-trees are nearly all dried to death. My sister has a fine grove of oak timber about her house. Three-fourths of the trees are dead. Drouth did it. I just mention these things to show how dry it is here. There has been a great deal of rain in the north part of this State this summer, but we have been skipped.

I hated dreadfully to kill the bees, but who can blame me for doing it? Perhaps some would like to know how we did it—kill the bees and let the other bees have the honey. First we examined them all in the yard. Nearly all had some honey in most of the combs, at their tops. The amount varied greatly. Some would have enough to winter, some half, some less, a few nothing. We parted the combs so we could see what they had, and marked on top of the honey-board 2 or 4, 6 or 8, or "kill." Those figures meant so many 3-lb. feeders. Then we put on the feeders of sugar syrup. We would then go to a hive marked "kill," and, with the smoker filled with tobacco-stems afire, blow into the hive a thick smudge of smoke. That made the bees helpless. Then we opened the hive and swept the bees off the combs and out of the hive into a box, setting the combs outside of the hive. The other bees would pile on to the combs to clean up the honey. When the combs were covered with bees we set them in the hive and let the bees work out the honey and carry it home. We dug a hole in the ground and buried the bees, then went home. When we came back in a couple of days to get the feeders we carried the empty combs home.

Platteville, Wis., Nov. 28.

[It seems like a foolish thing to do, destroy property — that is, to kill the bees outright instead of letting them take their chances; but perhaps under the circumstances it was the best that could be done. It strikes me I would have scratched around hard for some other expedient. If you had advertised that you had so many colonies that you would give away providing some one would be willing to pay for the

shipping-boxes and the few combs that would be necessary to go along to give them stores, you would have found a customer. These bees, in not a few localities not many miles away, would have been worth the freight, and more too, even if they were used for no other purpose than to strengthen up weak colonies. Yes, I think you would have found some one who would have been willing to pay a little something for the bees.

You say that north of you in your State they had rains. It is not improbable that some apiaries had stores, but were short of bees. The fall that I called upon you, Dr. Miller, in the northern part of Illinois, had to feed his bees the entire season to keep them from starving. A run of about only eighty miles on the bicycle, west and north, brought me into the southern part of your State, Browntown, Wis., where Harry Lathrop holds forth. His hundred colonies had done well that season, and, at the time of my visit, were storing honey at a rapid rate from a species of wild sunflower; and yet the doctor's bees were being fed. Your own bees that season had done poorly. Now, this shows that a difference of only eighty miles makes a marked difference in the honey-flow and the condition of the bees. I venture to say that there was more than one bee-keeper who would gladly have paid the freight, and a little more, for a distance by rail of eighty or twice eighty miles for a lot of good bees to strengthen up their weak stocks.

Say — the next time you or any one else finds himself confronted with this condition, write us before destroying the bees, and we will give you a free advertisement, in which you can offer to give away bees to any one who will pay all expenses. While you are about it you had better tuck on a price of, say, 50 cents a colony, for I don't believe it would be necessary to give them away outright.

Your records for the past 15 years are very interesting, as showing what has been done by large extensive bee-keepers. You have suffered heavy winter losses at times; but it is interesting to note how, the following season, you recovered those losses by increase, to say nothing of the honey secured. With plenty of hives and empty combs, there are here great possibilities. I remember one season, at our Shane yard, all in single-walled hives, we lost some sixty colonies out of about seventy. The remaining ten or twelve, fair to good, I increased the following season to some eighty good strong colonies, and secured a good crop of honey besides.—ED.]

HOW B. TAYLOR USES HIS SMALL "HANDY" BEE-HIVE.

NOT LARGE HIVES, BUT SMALL ONES CAPABLE OF EXPANSION.

By B. Taylor.

In the *American Bee Journal* for Jan. 16, Dr. Miller says:

DADANT WITH HIS BIG HIVES.—Chas. Dadant certainly makes a strong showing in favor of plenty of room in the brood-chamber, and I'm looking with interest for some reply from the advocates of small hives. I'd like to see the two D's lock horns—he of Borodino, and the Frenchman. What about a big lot of bees reared too late to work on the harvest? Even if it be admitted that the eight-frame is too small, why, Mr. Dadant, can't we use two of them for each colony?

I have been, and am still, an advocate of a small hive; but as my position seems to be misunderstood I will again explain. The question of large or small brood-chambers was raised early in the meeting of the North American Bee-keepers' Society at Chicago, in 1893, and I then intended to explain fully my position, and prove that Mr. Dadant and myself were not so far apart as it might seem; but sickness prevented my presence at the meetings, so I could not explain, except that I remember of saying, at the first day's meeting at which I was present, that my hives would hold either "a bushel or a barrel" at the will of the bee-keeper. I have always used a large hive, even for comb honey, at certain periods of the season. I have used a large hive for extracting, at all times, except in winter and *early spring*. My hives hold 1000 inches of brood-combs each; and when used singly, mine is a small hive. Two of them can be put together in two seconds, and then it is a large hive. Three or more can be added in the same way, to increase the hive to any size that Mr. Dadant could possibly desire. Next season I shall run part of my colonies for extracted, and will give those colonies two hives for a brood-nest. I will put a queen-excluding honey-board on this, and then use as many hives exactly like the brood-hives, and filled with extracting-combs, as are needed to store the entire crop of honey. At the end of the white-honey season I will use an escape-board under these extracting-hives, and in one night the bees will be out of them, and there will not be a single cell of brood in them to disturb one's feelings. These combs being exactly like our brood-combs, when we come to extracting we can save suitable ones for feeding. If we wish to use white honey for that purpose, and any of our colonies are found wanting at the end of the *fall* honey season, they can be slipped into the light colonies with less trouble than any way we ever fed; but we do not expect to use *white* honey for feeding. We know that well-ripened dark fall honey that we can find a market for at only a low price, if at all, will do just as well to winter bees on as the more salable white; and my especial reason for using my "Handy" hives is that I can not only get all the honey in any kind of flow, but I can easily get all the white honey for surplus, either comb or extracted.

Next fall, after the white honey is removed from the hives, I will put a cover on the two hives I have been using for a brood-nest, so the bees may fill it with dark honey for winter. If the fall flow is good, and more room is needed, I open the top hive and remove sealed combs of honey, and put empty ones in their place to be filled, so there will at all times be vacant room for storing all the nectar within reach of the bees. The combs of dark honey I got as above are the store from which I will draw supplies for feeding light colonies for wintering and for breeding up again next spring. In the fall, say early in October, I will take the double brood-

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chamber apart, and into one section of it I will put abundant stores to last the colony through the winter. The bees will be brushed from the removed hive, and that will be set in the iron curing-house, where no rats or mice can reach them to spoil the combs, for in the spring I will use them again to transform my small hive into a large one, that the system I use may be repeated again.

SMALL HIVES, WHY BETTER FOR WINTERING.

All my experience has led me to believe that bees winter best in a small hive crowded full of bees, and with just enough stores so there will be no danger of their coming to want or being scrimped during confinement. I have found, by many trials, that the brood-combs are less liable to mold, and will keep sweeter, when the hive is crowded well with bees, and I believe the bees keep more uniformly warm under such conditions. And I know positively that the combs and honey in the hive that is taken away will be cleaner and purer when kept in the honey-house than it would have been had the two remained all winter with the bees in them. Next spring I can at the proper time set the two together again in a moment, and have a large brood-nest again; and I can do this easier than I can carry these big double hives (or big single hives of equal weight) into the cellar and out again; for I have found by experience, especially since age has come on, and my strength has waned, that a small hive, even of equal weight, is more easily carried and handled than a large one; and I have also found that a small hive requires less room in the cellar, and that there can be many more of them put into the same size of room, with less crowding.

I will now call the reader of this back to where I reduced my large hive, which I had been using with all the advantages claimed by the friends of large single hives during the honey season. It is now a small hive again, with all the advantages enumerated above—compact, comfortable, and healthy for the bees; easy to handle, and economical of room to the apiarist. How can you prove to a practical, intelligent bee-keeper, who has "been there," that these small hives are not good when properly used? The combs are small, and more convenient for uncapping, than large ones. Mr. Dadant admits this by using small extracting-combs. I simply use all one-sized small combs, without losing any of the advantages of a large hive, and I gain many real advantages, and that without any increased cost in material or labor. I planned my small "Handy" hive, especially for comb honey; but I have written this article entirely in the interest of extracted; and, while I believe my present conclusions are correct, yet I know that the most of us mistake mere superstition and prejudice for knowledge. I had intended to stop experimenting; but there are so many of the leading questions in bee-keeping that seemingly rest on no demonstrated proof that I have changed my plan, and again commence the search for demonstrations in every-day practical questions of profitable honey-production.

I have previously given my reasons for preferring a small hive for wintering and early spring breeding; but for the purpose of further search in this field I have at the present time 40 two-story hives in my cellar that have at least 50 lbs. of honey each. Now, my bees never consume more than 8 lbs. each per colony. While in winter quarters those 40 colonies will be set on the summer stands, covered warmly, and left just as they are. Another lot that are now being wintered in single hives will be given another hive each at the proper time next spring; another lot will be left in the single hive until they swarm. All will be given the most equal and careful attention throughout the season. The surplus from each class will be carefully weighed, and the comparative results ascertained. Part of these colonies of each kind will be run for comb and part for extracted. I expect to get good results from each of these classes if the season is good; but if it is another poor season, I shall expect the swarms in the single hive to far outstrip the others in white surplus honey. Now, if friend Dadant will make an equally fair trial of large and small hives in his yard next summer, important facts may be learned to a certainty.

In this article I have not tried to please Dr. Miller, for I have not "locked horns" with friend Dadant. The doctor always seems to enjoy seeing the brethren "lock horns;" but I have not attempted to discredit Mr. Dadant's large hives, but have tried to illustrate the use of small ones; for I regard it as a poor plan to try to improve our own house by pulling down those of others, even if they are not the best.

DEPTH OF COMBS; AND IS IT ADVISABLE TO HAVE THEM BUILT SOLID TO THE BOTTOM-BAR?

At another time I may try to show the superiority of small hives for comb honey. I regard the "Handy" hives, as I make and use them, as well suited for use in the tiered up or double form; yet I could use the Root eight-frame Dovetailed hive, as now made, with satisfactory results. The chief fault is its size. Eight Langstroth frames make a large hive to use in this way for comb honey. Six frames would be nearer right, and a couple of dummies would make the change. But I prefer not to use any loose traps in my work if I can help it. The "Handy" hives are complete in themselves, without any changeable parts, and are always ready for instant use in any manipulation, without any change of parts for extracted. The Dovetailed hive would work well for both super and brood nest for two-story use. Any hive, to be satisfactory, must be made so as to maintain

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at all times not more (nor less) than a ¼-inch bee-space between the two or more sets of frames. For the brood-nest I no longer wish the combs built solid to the bottom-bars. I am convinced that a frame hive with the combs built solid to all parts of the frames, and the frames spaced 1⅜ from center to center, does not give clustering-room enough for the bees in either summer or winter. The hive is cut into many small rooms only ¼ inch in width, where the bees must cluster in small bodies, entirely cut off from their neighbors in the next room; and I know the outside clusters suffer greatly from cold as soon as frosty nights come in the fall, and some harm is done in winter and in spring; and I believe that such contracted quarters are detrimental in the honey season, and have a tendency to stimulate swarming, and to crowd the bees outside the hive in hot weather. The acknowledged superiority of box hives in many respects is in remedying the evils named.

There is another serious harm that comes to brood-combs from being built solid in the frames. There is no place on their edges for queen-cells, and the cells have to be made on the face of the combs. There will be from six to twenty such cells built every time the bees prepare to swarm; and each of these cells, when cut down after swarming, will leave a hard knot of wax, and each cell will spoil one square inch of brood-combs; and this will in a few years spoil the brood-combs (especially in small hives, where we must maintain worker comb in perfection) most seriously for extracting-combs. Where brood is not allowed, solid combs are a great convenience. In my "Handy" brood-hives, as now used, the slotted top-bar gives a free passage through the center of the hive when used double, and the combs have a half-inch space between the lower edge and bottom-bars. This gives a place for a considerable quantity of bees to cluster around the queen-cells, which with me, in a two-story hive, are sure to be located on the lower edge of the combs in the top hive, where I can reach them without opening the lower hive. I am surprised at the talk about queens not going readily into a second story. I have never experienced any trouble in that way; but my combs are shallow—the deepest being but 7½ inches; and the large and free passage in the center of the hives, and where a quantity of bees are always present to invite the queen above, may have something to do with my success. It may be that, in a hive with deep combs, whose top might not be covered at all times with bees, the case might be different. I have used many hundreds of two-story hives with combs from 4½ to 10 inches in depth, and all of them with fair success; and I am not certain now just what depth is best; but I am quite certain that very deep combs are not suitable for a two-story hive, and that most bee-keepers who are and have been condemning two-story hives have never given them a trial with proper hives, nor used a system suited to get the advantages of two small hives instead of one large one, in producing surplus honey on a large scale. Experience has convinced me that man is very prone to speak and act upon nearly all questions from the standpoint of supersitition and prejudice, rather than from experience and reason.

What I have said in this article in favor of small hives has the merit of at least being the result of long experience in the use of such hives as well as the large single-story hives so earnestly advocated by some leading bee-keepers; and if any new light has been cast upon the question, the writer will have gained his purpose.

Forestville, Minn., Jan. 17.

[I had said that the hive discussion was to be closed; but Mr. Taylor, not having seen this, sent the article above. It is long, but so good that I decided to use it after all. It covers many valuable points, and I am sure it will pay our readers to read it clear through.—ED.]

ONE OF THE CALIFORNIA APIARIES SHADED BY LIVE-OAKS.

G. W. LECHLER & SON'S APIARY, NEWHALL.

Mr. Root:—When you were at my place you requested, if I had a picture of my apiary, to send you one; and as I have had some taken I now do so.

The prospect for a honey-flow this year is very poor. I do not think we shall get an extracting. I extracted about 20 tons last season, and sold it at 4 cts. I have parties who take all our honey at a fair price. San Diego parties broke the record last season on prices.

Newhall, Cal., Mar. 25. G. W. LECHLER.

[After friend Reasoner and I had been following after his big stout colt hitched to a sulky, as I have told you about in our back volumes, up the mountain canyons, through the dried-up creeks, and even over the mountain-peaks, we suddenly came upon friend Lechler's apiary, as shown in the accompanying illustration. You know that, away back in old times, I used to discourse to you through GLEANINGS about having the apiary free of weeds, and leveled off like a brickyard. Then I said the ground in front of the hives and at the entrances should be covered with white sand, so that each hive might have a little space, at least around the doorway, so clean that, if a young queen were thrown out during the night, the apiarist could see at a glance what was up. Well, at friend Lechler's I found my ideal apiary. The artist has succeeded in reproducing the beautiful live-oak-trees, but he has not been able to catch the beautiful clean painted hives, the level ground, and the clean sandy surface all around them. We have had him try twice, but he had to give it up. There was too much shade under the trees.

Now, the funny feature of this beautiful apiary is that it is mostly nature's work. You would suppose, of course, that friend Lechler planted the trees that stand so regular they

A CALIFORNIA APIARY IN THE SHADE OF LIVE-OAKS, BELONGING TO G. W. LECHLER & SON, NEWHALL.

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make one think of a down-east orchard. But he did nothing of the kind. In fact, I am not sure that he leveled off the ground and mowed off the weeds. You see this is a sort of desert sand, where nothing grows but these wonderful live-oaks; and they succeed in getting the moisture and fertility to such an extent that scarcely a weed can be found, let alone grass. Why, bless your heart, if you should talk about *grass*, or express a longing to see green fields once more, in California, they would laugh at you. In some of the large cities of that State you may find a little bit of lawn in front of some fine residence where the owner has stamps to pay for the incessant watering during the hot, dry, dusty summers. Never mind. Friend Lechler deserves credit for his nicely painted bee-hives all standing level, square, and true. Dame Nature did not build any bee-hives on the desert — not that kind, any way. Another thing, you can level up your hives nice and true in California, without any fear that Jack Frost will come along and tip them at almost every possible angle, as though he did it just for sport or in derision.

Just before we reached the Lechlers we had been climbing mountain-peaks. I wondered, in starting, why friend Reasoner took such a great big young horse to pull a little light sulky with only two men. But before we got quite over the mountains it was all the pony could do to pull your humble servant alone; and friend R. had quite a little puffing to do to get along on foot. Well, it is just like California, to show you such a beautiful natural grove in a little bit of valley, after you have been climbing mountain-peaks and naked, jagged rocks.

Friend Lechler evidently considers 4 cents for his honey a fair price; but I am afraid he will have to explain just what he means by San Diego breaking the record — at least, before we all understand it.—A. I. R.]

THE QUESTION OF BEES TRANSPORTING EGGS.

A REPLY TO DR. MILLER AND THE EDITOR.

By Friedmann Greiner.

Dr. C. C. Miller:—You speak on page 167 as though an egg in a cell *is* changed every 24 hours. I am not aware that any one has really made these observations. It is *found* changed slightly, very true. This I have seen with my own eyes, and I could not very well contradict the assertion—at least, not in as far as it relates to the angle the egg occupies in its relation to the cell-bottom; but that even these slight changes should occur at regular 24-hour intervals, I think remains to be proven.

Splitting hairs! Oh, yes! of course, I admit; and I also imagine detecting something of the sort on page 167. From the reading on page 143, it appears very clearly that my expression, "moving eggs," was used as an equivalent for "transferring eggs from one cell to another to be hatched and grown there." I seem to be misunderstood all around. Ernest leads out the old chestnut again, as though his seeing "a bee carrying an egg once" was proving any thing whatever, either for or against the egg-moving theory.

O Ernest! si tacuisses—well, I will not say the rest. Ernest is not favorably inclined toward Latin phrases. But then, we will try to make closer observations in the future, and record them carefully. I hope many of the vexed questions may be cleared up soon. That you may be able to report next fall, "75 to 100 lbs. per colony," is my wish.

Naples, N. Y., March 4.

Feb. 28.—Our bees on summer stands (in chaff) had a glorious time to-day—the first since Dec. 24. I think we shall come out in good shape. Bees in cellar are quiet.

[I may not be as well up on Latin as some; but I have spent six of the best years of my school and college life on that language, and I know of no reason why I should not be "favorably inclined toward Latin phrases." If I had kept silent on this, as the quotation implies, some of our readers, at least, would not have known that there was any proof to the effect that bees do carry eggs. I did not say (referring to page 143) that I had seen a "bee carry an egg once." The fact is, I have seen them do it repeatedly. I grant that this seeing, in itself, is not absolute proof; but taken in connection with the references that I cited from our back volumes, it is very significant. Our senior editor, when I brought the matter before him, was greatly surprised that any one should doubt the point; for when he had charge of the apicultural matter in the journal, ten years ago and more, the question as to whether bees carry eggs from one part of the hive to another seemed to be pretty well established and accepted. Indeed, on p. 328 for 1883 he says, in a footnote, "We have good evidence that bees carry eggs from one comb to another." It would take hours to look up all these references, and, moreover, it is not necessary; but instances are on record where, in a hive hopelessly queenless, was placed a comb containing partially completed queen-cells, and another comb containing eggs. In twenty-four hours or so eggs were found in the cells of the other comb, and subsequently these hatched good queens. And, again, if I remember correctly, I have placed a comb of eggs in a hive that I knew to be queenless, and the next day found a few scattering eggs in the combs next to it. You say you were misunderstood; that your expression, "moving eggs," was "used as an equivalent for transferring eggs from one cell to another." On page 143 you say, "Many careful and keen observing men and women have kept and are keeping bees, and still such a thing as transferring eggs has not before been observed. To me it does not look possible," etc. This is my excuse for reproducing the "old chestnut."

[*Later.*—After I had written the foregoing I came across the following, quite by accident. It was among a lot of manuscripts which, for want of room, were deferred till later. As it strikes upon the point at issue, I give it here.—Ed.]

HOW BEES TRANSFER YOUNG LARVÆ FROM ONE FRAME TO ANOTHER.

For some time past I had been noticing that one colony that, in former years, was especially marked in honey production, did not seem to be in its normal condition. There seemed to be but little apparent activity in the hive. August 10th I opened the hive and made an investigation. I found my suspicions confirmed; namely, that the colony was queenless. The

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combs were well filled with honey, and a fair number of bees were in the hive; but not a trace of brood at any stage could be seen. On the evening of the same day I sent off an order for a gray Carniolan queen, as I was anxious to try that strain. On the 14th I gave that colony a frame of brood, some of which was sealed, and others in all stages. I know but little about the best method of management of bees, but I wanted to see what effect the introduction of brood into the hive would have upon the bees. I thought possibly it might make them anxious for a queen, and that thus they would more readily welcome the new queen when she would come.

On the next day, the 15th, my queen came. Before placing the cage in the hive I examined the frame of brood to see whether they had begun to construct queen-cells; but there was no indication whatever in that direction. As the bees did not seem to be anxious to release the queen I examined that one frame every day, but no trace of a queen-cell was seen.

On the 19th, four days after the introduction of the queen-cage, I concluded to make a more thorough investigation. This time I examined all the frames, and I found a number of queen-cells throughout the hive—some on the third frame from the frame of brood. The bees had transferred larvæ into the queen-cells, and one queen-cell was capped, and one cell had a larva just hatched. They had also transferred considerable brood into worker-cells and into drone-cells. Some of the drone brood and worker brood was capped. The drone-cells were in the third frame from the introduced frame. On some of the frames I found about ten square inches, every contiguous cell filled with brood. The bees had evidently a hard job on their hands. Some of the brood was not in natural position in the cell; but, instead of lying parallel to the surface of the comb, much of the larvæ had one side deeper in the cell than the other side. Again, the bees were not able to place the larvæ in the bottom of the cell, but nearly all were lodged about half way down.

I am now convinced that bees do transfer brood in different stages of development. They transfer it to quite a distance; and, while in this case the tendency seems to have been to group the transferred larvæ, yet on some of the frames a single cell containing brood was found.

From the noted condition of the hive, and from some facts that I know about the colony, I think the queen was lost in May.

DANIEL FLEISHER.

[Perhaps my friend Greiner will insist that this is not a case in point, because he was talking about *eggs*. If bees will transfer larvæ they will eggs; and, to refer to that "old chestnut" again, I have seen the bees carry eggs. If they carry eggs they can also put them in cells. —ED.]

Look here, friend Greiner, you think you're misunderstood all around; but it seems to me *I'm* the one that's misunderstood, if you think I wanted to treat lightly what you said on page 142; for I consider it a matter of no small consequence to know whether eggs can be kept in safety for some time out of the hive, and have done some little experimenting in that line, although none of my efforts have so far been successful. It surely would be a nice thing if we knew how to keep eggs out of a hive for even three or four days, and then have the bees hatch them out; for in that case there could be quite a business sending eggs by mail.

I'm rather ashamed to say it never occurred to me before that it made any difference how fresh or how old an egg was, so long as it had been kept by the bees and had not yet hatched out into a grub. But since you mention it, it looks very reasonable to suppose that, as soon as the hatching process has commenced, the egg begins to change, and will not endure removal from the heat of the bees. After a hen has been sitting on an egg three days I suppose it will be spoiled if chilled, although before the hen commences to sit on it it may be almost frozen without impairing its vitality. Reasoning by analogy, if we understand that the process of incubation commences immediately when the queen lays the egg, it will be as far advanced when ten hours old as the egg of the hen after it has been sat upon three days. So if the queen is laying regularly, and we want to take out eggs that are fresh enough to keep, we'll find only about one out of every eight eggs in the hive of that description.

Now about bees moving eggs. I think you are right in believing that nothing is proved one way or another as to whether bees can move eggs from one cell to another, and then hatch them out, simply by the fact that a worker has been seen carrying an egg in its mouth. It might be carrying it the same as it would carry a piece of dirt.

But if the teaching of others is correct, you are wrong in thinking that the egg is so firmly cemented to the bottom of the cell that a worker can not move it, and also in thinking that, in all stages, the bees would have to fasten the egg in the cell "standing on end." I do not know from my own observation that "an egg in a cell is changed every 24 hours," but I think I have seen that distinctly stated by more than one writer, albeit by no one this side the ocean. I quote what is said by no less an authority than Thos. Wm. Cowan. In the "Honey Bee," page 10, he says, "It will be noticed that the egg stands in a position parallel to the sides of the cell, and this position it retains the first day. On the second day it is inclined at an angle of about 45°, and on the third day it assumes a horizontal position, resting perfectly flat on the base of the cell." It seems a little strange that American books make no mention of this, as it is a matter that can very easily be proved or disproved.

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At any rate, so far the statement stands on good, unchallenged authority; and so far as it has any bearing upon the question of bees moving eggs from one cell to another, it at least favors the idea that they do something in the way of handling eggs. But I've no kind of idea whether bees do or do not move an egg from one cell to another. C. C. MILLER.

Marengo, Ill.

SOME HOME HINTS THAT ARE RIGHT TO THE POINT.

By Mrs. L. C. Axtell.

Mothers, brush back your hair neatly before breakfast, and thus set an example for your daughters.

Fathers and brothers, please clean your feet before you come into the house, and help mother to teach the younger children to do the same, and thus save much labor for the overworked wife and mother.

Brothers and sisters, say "please" to each other when you ask a favor, and "thank you" for favors done, and thus scatter sunbeams of love and cheerfulness in the family circle.

Let no member of the family excuse himself for being cross and wearing frowns. It makes everybody feel uncomfortable who comes in contact with you, and life is too short to plant thorns where flowers and fruit ought to grow.

As often as the children have dirty faces, send them to wash them, even if it is a dozen times a day, and they will soon learn to keep them clean of themselves.

Give poor pussy a little new milk regularly, and she will thank you by catching more mice, and milk will keep her well if she eats too many rats.

In teaching the little ones to wipe dishes dry, wet the dish-towel in clean hot water and wring very dry. It takes up the moisture from the dish more readily, and the little one will not complain she can not get the dishes dry.

When potatoes are pared over night to cook for breakfast, do not let them stand on the stovehearth or reservoir where they will get warm, for that will make them soggy, and hard to cook.

Don't try to use dull scissors or shears. It doesn't pay. If husband or brother can't sharpen them, buy a scissors-sharpener and learn to do it yourself.

If you have found out something new, and you would like others to share it with you, drop your work immediately and note it down, or you probably will forget to do so in your leisure.

Rub up the lantern. I have often seen nicely dressed people carry around very dirty lanterns. They never think of cleaning. Clean not only the glass but the whole lantern.

In washing clothes when kerosene is used, always put in enough soap to make a good suds. One tablespoonful of kerosene to a patent pail of water is sufficient.

Save the apple-parings and throw them into a jar of soft water—boiled well water will do. When the jar is full, press out the parings and sweeten the cider a little, and throw in more parings from time to time, and you will soon have nice strong cider vinegar. It will come sooner, and be stronger, if you can give it a mother from other vinegar.

If it is winter, don't forget to have your little strawberry-patch covered lightly with straw or strawy manure. It doesn't pay to keep your strawberries cultivated properly during summer, and then neglect to cover them in winter.

Don't wait to do all your house-cleaning at one time, every fall and every spring, as people usually do, and thus make the whole family uncomfortable for several days, but clean a room from time to time the whole year round, and thus keep the house clean and sweet.

Call upon your neighbors whether you think you have time or not, and thus promote a kindly feeling between them and yourself; but be careful of what you say of others; cultivate the habit of saying nothing you would not say to their face.

"Show me the books and papers the family read, and I will tell you what kind of people the family are," is a true saying; therefore provide good reading for both old and young. If you are tempted to feel you can't afford it, let the family live on two meals a day until you have saved enough, and see if you don't feel, before the year is out, your third meal has been the best of all.

Each day after sweeping painted or hardwood floors, wipe them over with a mop wrung out in clean water, and thus keep your working-rooms clean and healthy.

Do not let a tin boiler stand with water in it, as it rusts it very soon, and will rust the clothes, and will soon leak; but as soon as the washing is done, wash out and dry, and rub the inside with a greased rag that is kept for that purpose, and put the boiler away in a dry room, not in a cellar, and it will last four times as long as if not properly dried and greased.

Old tin pans that are rusty are unfit for milk or food of any kind, as tin rust is poisonous, though it pays to take care of the old pans. They may be used in many ways that will save the new pans.

White specks in butter are often caused by the cream becoming dried before being churned, the milk being set where the wind blew upon it. When churned it could not be dissolved. Some would still be seen floating in the buttermilk.

Roseville, Ill.

[There, dear friends, I hope you will read the above all through twice, just as I have done. When you read it the second time, carefully

ponder and consider whether it does not hit you somewhere; and when you get through I shouldn't wonder if it would be a good idea to write our friend a postal; and if you have not time to put any thing more on it, just write "Thank you for the home hints."—A. I. R.]

A CRITICISM ON GLEANINGS,

ON THE HOME OF THE HONEY-BEES, ON THE A B C OF BEE CULTURE, AND ON THE ROOT OF ALL.

By J. W. Porter.

For many years I have been a fairly careful reader of GLEANINGS, and such an admirer of The A B C of Bee Culture that I have, to no small extent, lionized its author. During the last two years, however, I have read GLEANINGS, as well as other literature from the Home of the Honey-bee, with more critical attention than I formerly did; more particularly so, as to the phraseology, typography, and style of the reading-matter sent out from that institution. In doing so I have, very naturally, formed opinions as to the morals, nature, merit, ability, and motives of persons connected with that establishment, as well as correspondents and advertisers in GLEANINGS, where their acts and sayings came near enough to the surface to allow me to form an idea as to their individual characteristics.

Readers of GLEANINGS will remember that, on several occasions, that journal has invited criticism from its readers, and yet I remember that no extended criticism has been published.

Mention has been made, probably by the associate editor, that the intention was to make GLEANINGS compare favorably with the best periodicals of the day. I take it for granted that he meant that the comparison should relate almost wholly to the typography of GLEANINGS. I should like to see such intention carried out, for I see abundant evidence of the ability of the publishers of GLEANINGS to warrant success in that undertaking. But to make the necessary changes to bring GLEANINGS up to that standard means quite an additional expense; and can the editors afford to make the change? The readers will be better able to judge of this after reading the following:

The *Century* is published twelve times per year, and is sold at the news-stands at 35 cts. a number. The twelve numbers contain about 3,500,000 words. GLEANINGS is published twenty-four times per year, and contains about 2,016,000 words, and is furnished to subscribers, with postage prepaid, at about 4⅓ cts. per number. The *Century* has a circulation of more than 200,000; GLEANINGS has a circulation, say, of 12,000 to 14,000, and uses over a ton and a half of paper every month. It appears, then, that GLEANINGS has to put up fully $300 every month for paper, postage, and freight. Let every delinquent subscriber to GLEANINGS follow out the bill of expenses in publishing it, the cost of skilled labor, the use of costly machinery and type, then add to this the yearly loss of $3000 on unpaid subscriptions; and when the estimate is made, conscience will prompt them to pay up for past favors.

The majority of mankind do, to a certain extent, form an opinion of their fellow-creatures by their dress and personal appearance; so also does the reading public form opinion of books and magazines by their dress and general make-up. Commencing a review of GLEANINGS in accordance with that primitive method I shall have to speak first of its outside dress.

The cover of that journal has now a modest and very fashionable color, but it is not a good color for print nor for cuts where black ink is used. The design for the front cover has considerable expression, but it can not be classed with first-class designs. I should say the floral display is too "loud," and that there are too many bees in flight; yet it is an improvement over the former cover. No doubt a good deal of pains was exercised in the selection of the present design, and it is certainly modest and tasty, taken as a whole. The design cost considerable, and was not a thing of chance. When GLEANINGS takes the next step in improvement I hope it will embrace the whole makeup of that journal. And for the next cover, I would suggest some design without a very pronounced floral display, and without any bees in flight—perhaps queen-bees at rest on the four corners of the border lines, and the cover, say, of pale-blue tint, the ink for both the outside of the covers to be very dark blue and light red, the design for the first page of the cover to be selected from as many designs as would be offered in a prize contest for the best design.

The advertising pages of GLEANINGS look fairly well during the winter months; but during the summer months, when Tom, Dick, and Harry begin to advertise their wares with stereotypes of their own designing, these pages begin to take on a ragged appearance, not at all conducive to patronage from firms and individuals who make advertising a business and a study. When GLEANINGS shall conclude to control its advertising department in respect to the style of the advertisements, it will at first create a little trouble with some of those now advertising; but in the end it will be advantageous to all parties concerned. Display type used in show-bills and gutter-snipes look very well in a newspaper, but are seldom used by first-class journals in advertising. Turning now from the advertising department, and passing on to the core, or reading-matter, of GLEANINGS, I will first speak of the type used.

If I should place *The Cosmopolitan*, *The Arena*, and *The Century* in the hands of almost any one of the many readers of GLEANINGS, and tell him to compare the typography of

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those journals with that of GLEANINGS, and explain what causes the difference in appearance, he would be very likely to say, "The difference is in the size of the type. GLEANINGS uses a great deal smaller type than do those others." But should the reader attempt to prove this assertion by actual measurement, unless he was of a very mechanical turn of mind, he would then declare that he was mistaken; that there is no difference. But when carefully measured by a finely marked ruler, a difference in size can be seen. The lower-case type of GLEANINGS measures $\frac{1}{16}$ of an inch, *The Century* $\frac{1}{17}$, and *The Arena* $\frac{1}{15}$. *The Cosmopolitan* uses about the same size of type that GLEANINGS does. Measured the other way, GLEANINGS can print 18 letters to the running inch, *Cosmopolitan* 17, *Century* 16 *Arena*, 15, not allowing room for spacing. This is getting down to hair-line measurement, and the difference in the size of these type seems almost too small to be noticed. Any one, after seeing that there is so little difference in the size of the type used by those four journals, would naturally jump to the conclusion that there must be a great deal of difference in the "leading" of the reading-matter; but, again, the measurement most emphatically disproves that assertion; for, on measurement, the difference in the space beween the lines is only about $\frac{1}{100}$ of an inch. Then the third and most correct conclusion is reached; to wit, a very little difference in the size of the type, and a very little difference in the leading, and a very trifle difference in respect to the broadness of the face of the type, is readily noted by the eye.

But while there is so little difference found in the size of the type used by the four journals in question, there is, as before stated, a vast difference in the appearance of the printed pages of the said journals, and this difference is most quickly discovered by the weary or the aged eye.

Only one defaced letter in a whole page may be passed by the reader unnoticed; but where there are many defective prints in a page, the eye will quickly discover the inharmony, though the reader may not immediately comprehend the cause. To further illustrate this, I will here refer to page 21 of GLEANINGS for January, 1894. To me that page did not look right, though I was reading for information, and not for the purpose of criticising. In looking for the cause I counted fifty defective prints on the page, and I probably did not discover all the imperfect prints at that.

It is fair to presume that at least a third of the readers of GLEANINGS are people past the noontide of life, and that they use glasses in reading; and if this is true, Mr. A. I. Root should, in justice to his readers, not only "lead" his special department in GLEANINGS, but should also employ larger type if he can afford to do so. He, however, is a man of very decided ways, and at times firm almost to unpleasantness; therefore, rather than be unhorsed from his hobby, which in this case is very small type, he would be very likely to appeal to his readers about in this way:

"Now, my friends, you have read my unleaded articles in small type for a good many years; what say you? Do you want a change to larger type and leaded matter?" And to the question so put, especially if it came up in the way of criticism, in all probability the answer from a large majority of his readers would be, "No change; the present style is good enough for us." On the other hand, should he first put his special department in larger type and lead it out, and then say, "My friends, I have given you my talk this week in a larger type; what say you? Do you like it better than the smaller type?" I feel certain that none of his readers would be backward about expressing their approval.

I do not claim that good taste is violated by solid (unleaded) matter in Mr. Root's special department; and, so far as I know, he might use pearl type and not violate any rule known to publishers. But as he writes these articles with the expectation that they will be read, he certainly should manifest some concern as to whether they can be easily read or not. Allow me to draw a picture from every-day life.

Mr. A. is a farmer and bee-keeper. The day's work is done, and he is physically tired. He takes GLEANINGS, and reads, as is his custom, from first to last page. Somehow or other the print blurs a little, and he cleans his glasses and continues his reading, but with considerable discomfort to his eyes. It happens to be on one of those occasions when eyesight appears to be a trifle out of order, and he does not enjoy his journal quite as well as he had anticipated. He finally concludes that he is too tired to read the journal through, and that he will just turn to Bro. Root's special department and compose his mind for sleep. But the letters blur worse than they did when he first commenced to read; but he struggles through half a column of ethics, and then lays the book down with a feeling that he will either have to give up his reading at night or get a new pair of glasses. Thus Bro. Root's article is never finished by Mr. A.

Allow me to further illustrate: The reading-matter of GLEANINGS is crowded into eight lines to the inch; A. I. Root's special department, eleven lines to the inch; and the A. I. Root Co.'s advertisement of wire netting, on the inside of the back cover, is 12 lines to the inch, and on colored paper. It is true, that most rapid readers read from the form of words, and not by spelling them; yet, to so read, the letters must be far enough apart to be distinguishable from each other, and the space between lines

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wide enough so they shall not seem to run together. But reading by form can not be applied to matter containing figures, such as are found in the advertisement referred to.

Besides the editors and their work, there are others connected with the publishing department of the A. I. Root Co. who are very important factors in all publications turned out by that company. I refer to the foreman and his staff of compositors. In their province, good judgment and good taste have to be continually exercised. I judge from the work turned out by that establishment that there is a master hand at the helm, and one that can do good work with very commonplace material. Then, too, a publisher is often a better judge of literary work than the editor; therefore there must be times when articles are handed to the foreman for publication that would cause him to "sweat blood."

Ponca, Neb.

(To be continued.)

BUILDING WORKER COMB.

Question.—How can I secure worker comb in frames without giving frames filled with foundation? In taking out combs and inserting frames having only a starter, I find the bees invariably build drone comb. I also find that swarms hived on frames having starters on them often fill whole frames with drone comb. Please tell us in GLEANINGS how we can secure extra frames of worker comb without using foundation.

Answer.—In this question we have one of the puzzling things which confront us in bee-keeping, and one which every bee-keeper is sure to run against, even though he inserts only a few frames in a hive which are not filled full of foundation. I have found, from twenty-five years of experience, that it is folly to insert a frame, having only a starter in it, into a full colony previous to the swarming of that colony, with the hope of getting one square inch of worker comb; and if frames must be inserted in such colonies, at such times, it will pay the apiarist to purchase comb foundation for such frames, even though he has to pay as high as a dollar a pound for it, rather than try to get them filled with worker comb by the bees.

But if we have extra combs on hand to put in the place of those taken out then we are all right, and even better off than to put in foundation, had we a storehouse full of the same. So we come to the main question: "How shall we secure *extra* frames of worker comb without using foundation?" I find that there are three conditions of the hive or colony, under which, if rightly managed, the bees will almost invariably build worker comb. The first, and surest of the three, is when a colony is very weak, or what we term a nucleus. If such a weak colony is deprived of all of its combs save one of honey and one of brood, and a frame with a starter in it is inserted between the two combs left in the hive, the bees will, 99 times out of 100, fill that frame with worker comb, said comb being as perfect as one built from foundation under the most favorable circumstances. Now, in all cases of uniting bees in June, that two moderately weak colonies may make one strong one for the production of comb honey, I am always on the lookout for these extra combs, for this is just the time to have them built. In fact, whenever I have any weak colonies in June or July, or whenever I have any very strong nuclei in my queen-rearing, I always have an eye to this matter; and in this way I secure many extra combs of the most perfect kind, to be used in years to come.

The second is at the time of hiving new swarms, which are treated in this way, when I wish them to build worker combs. The swarm is hived on the full number of frames the hive contains, and left for 36 to 48 hours, the surplus-apartment generally being put on when the swarm is hived. The hive is now opened, and five of the frames are allowed to remain—those which have perfect worker combs started in them, the rest being taken away, and dummies used to take the place of them. This throws the force of bees, not needed below, into the sections, and gives a place in the sections for storing all of the honey brought in from the fields, so that the bees do not need to build any store comb in the brood-nest, which store comb, when built for that purpose, is generally of the drone size. By this time the queen is ready to keep up with the bees in their comb-building, with her eggs, and thus nine times out of ten I get these five frames filled with worker comb, and, besides, secure a good yield of section honey. This is very similar to the way W. Z. Hutchinson works to secure a good yield of section honey and frames filled with worker comb, and, if I am not mistaken, he agrees with me that combs so built are a clear gain to the apiarist. When any colony having an old or laying queen is first hived, some of the combs started are liable to be of the drone size, on account of the queen's not being in a condition to fill the cells at first, as all queens cease almost entirely to lay for 24 hours previous to swarming, so that they may be reduced in weight that they may fly and accompany the swarm; and full prolificness does not return under 48 hours after the swarm has commenced keeping house in its new home. As these combs having drone size of cells are just right for store combs,

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the bees generally keep right on with that size of cells till the bottom of the hive is reached.

There is occasionally a swarm that seems determined to rear drones, and in this case they will build some drone comb, no matter if they have all the room for storage necessary, in the sections. Where, from appearances, I think drones are desired, I insert an old drone comb at one side of the hive, besides the five frames that are started with worker comb, and this satisfies their desire for drones, and I succeed in what I am after—the five frames of worker comb. This drone comb is taken away at the end of ten days, or left, as suits me best. As soon as these five frames are filled with worker comb, I now fill out the hive with extra worker combs or frames filled with foundation, as I may elect, when I have that hive filled with worker comb for the next 20 years to come, unless something happens to destroy a part or all of it, or I take it away to use elsewhere.

The third condition under which worker comb will be built is just after the young queen gets to laying in any colony having cast a swarm. If, after she has been laying a day or two, we take away two or three combs and put frames with starters in their places, we shall find that said frames will be mainly filled with worker comb; but we are not quite as certain of it in this case as we are in either of the other two, for it sometimes happens that the bees will prefer to leave off storing in the sections, and build store comb in the frames, thus defeating what we are striving to attain. The bees are also more likely to build worker comb on a fall yield of honey than they are in the spring; but I have never had any thing really satisfactory along this line, save under the three conditions which I have given, and have spoken of them in the order of their worth, as I consider it.

DADANT HIVES.

Question.—Can you give me the measurements of the Dadant hive so I can make them with hand-tools?

Answer.—I do not think I am familiar enough with the Dadant hive to do this, and would advise our questioner to send to the publishers of GLEANINGS for "Langstroth on the Honey-bee, Revised by Dadant," in which he can find, on page 163, cuts, etc., which will enable him to make the Dadant hive, I think, but which would be asking too much of this department to insert here. I should have answered this privately had the questioner given his name.

ONLY ONE COLONY LOST IN SIXTY.

I have lost only one stand in 60. It was a so-called Perfection hive that an agent left with me on trial. As he paid me $3.50 for the bees to try it with, it's his funeral. J. L. McKENZIE.

Howesville, W. Va., Apr. 4.

T. L., Iowa.—Bees show a strong liking for salt water. We sometimes salt the water for them. They evidently require it or else they would not seek it.

H. D. K., Ohio.—The custom on the part of bee-keepers who requeen often is to do it not oftener than once in two years. Once every year, as you suggest, would be an unnecessary expense.

W. G., Pa.—It is not safe to try to commence queen-rearing before about June first. As to the best method of getting cells started, it varies with different ones. For our plan we would refer you to the A B C of Bee Culture.

J. C. S., Wis.—Sorghum molasses will do very nicely for spring feeding. We would not recommend it, however, for a winter food, although it has been used in a good many cases, and has given good results. If you have to buy the food to give the bees for spring stimulating, we would advise you to buy granulated sugar. It costs a little more per pound, but it goes further; and in the end, we think, it is a good deal cheaper.

J. J. D., Cal.—An acoustic telephone is sometimes used to indicate when a swarm has come forth. Wires are strung on poles clear around the apiary, and then connected with the house. The striking of the bees in rapid succession against the wire when a swarm comes forth will promptly give you the alarm. Sometimes, when they are working heavily in the fields, the frequent tapping of the wire will lead one to suspect a swarm; but when a swarm comes forth there is a perfect onslaught of taps. An electric telephone, of course, would not answer the purpose at all.

G. A. F., Minn.—In keeping bees on shares it is usual for one of the parties to furnish the bees and the other the labor. Any hives or other material that has to be bought for the apiary is usually shared by both the parties equally. At the end of the season the honey is divided if they get any. We usually advise against keeping bees on shares, as a good many disagreements have arisen. A far better way is to buy the bees outright yourself, if you can, and then pocket all the proceeds and all the losses too; and if things do not go right you have only yourself to blame.

R. E. H., Ky.—In the matter of queens just hatched, it is *usual* to let them have their own way. The young queens will remain in the hive if they do not attempt to swarm out, and in proper time one will become fertilized and the rest disposed of. Generally they do not become hatched until the parent colony has swarmed out, including the old queen. Then,

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of course, the bees that remain simply wait for the young queen to hatch and become fertilized and begin to lay. If there is a plurality of them, there will likely be a small swarming-out with each.

C. M. T., Ill.—The honey referred to in this journal, that was raised to a temperature of 180 degrees, was not made darker; but when honey is brought to a *boiling-point*, and *kept* there, it will turn darker, and its flavor will be injured. It is possible that some honeys would be affected by a temperature of even 180 degrees. That of which I spoke was from white clover. In any event you must observe the precaution of bringing it up to 180 degrees and then take it off the stove immediately, and seal while hot. An ordinary thermometer would do to register the temperature. Those sold for dairy purposes would be better, of course.

E. S. S., Ind.—Replying to your question No. 1, I would say that, by feeding, you can make your bees considerably stronger. We would recommend the Boardman feeder, as given on page 27 of our catalog. The bees should be fed along nearly up to the time the honey is coming in, and then, of course, feeding should stop. 2. You can begin feeding almost any time now. 3. Yes, we would feed even the colonies already well supplied with stores. By sending to H. R. Boardman you will get some good reasons why colonies well supplied should be fed. 4. It is generally advisable to feed either at the entrance of the hive or inside of it. There are certain cases when bees can be fed out of doors; but the trouble is, some colonies will get more than their share, and usually it is the stronger colonies that get the most. In such outdoor feeding it is generally safer to use very thin sugar syrup, or inferior sweet of some kind, the same as is spoken of in the A B C book you have. Yes, you can feed the bees meal to stimulate brood-rearing, as is explained in the A B C of Bee Culture; but it is not absolutely necessary, and of late years we have not practiced it at all, because natural pollen comes in as soon as the bees really need it.

ADULTERATION NOT PRACTICED IN CALIFORNIA.

California can not afford to mix honey with any thing, but I think a large amount of our honey is mixed after it goes east. They have put up a great cry that we mix our honey, just to shield themselves. The reason I make this statement is, our honey-buyers here often get letters from Chicago and Kansas City like this: "A man here needs a car of honey for flavoring;" or, "A manufacturer needs a car;" or, "A syrup man wants a car for mixing." I want to know what they call it after it is mixed. It is apt to be "Pure California Honey." Then they cry at us, "Thief! thief!" so all will run after us and hiss, while the real thief goes free.

Selma, Cal. O. W. STEARNS.

OUR EXPERIENCE WITH SWEET CLOVER, ALFALFA, KAFFIR CORN, ETC.

The bees work on sweet clover well. The first we fed to our stock was cut quite small, and the horses or cows did not eat any of it for about a day; but when they tasted it they preferred it to any thing else. It is the same way with red or alsike clover. When our stock are used to eating prairie hay they will not eat clover until they have had a little time to become accustomed to it.

We have raised the Kaffir corn for several years, and think it good. The seed is excellent, especially for chickens; but for fodder, the sugar cane is a little better. Both stand dry weather well. The great advantage they have in a dry season over maize is that, after a long dry spell, they will take a second shoot and do well, which the corn will not do if it is too far advanced when rain does come. I have grown alfalfa and alsike clover side by side, and we could hardly see a bee on the alfalfa; but after my alsike died out in the winter of 1892 the bees worked some on alfalfa; but when our seasons become more moist, which will enable us to grow alsike, I would not exchange one acre of it for five of alfalfa for bees.

Our weather is fine, and prospects are good. Our bees gathered plenty of stores and some surplus last season. J. T. VAN PETTEN.

Linn, Kan., April 15.

[The great advantage of alfalfa for honey is in the fact that it is grown in many places by the hundreds and thousands of acres. Where irrigation is practiced, it seems to be a sure thing season after season. Now, there is no place in the world where alsike clover is grown in this way or on this large scale—at least, I do not know of any such place. Again, alsike blossoms only once in a season, while alfalfa, if I am right about it, blossoms three or four times, so that, in a locality where it is raised on a large scale, there is pasture for bees somewhere on the alfalfa during almost the whole season. I think you are right, however, in thinking that alsike gives a larger amount per acre, usually, than alfalfa.—A. I. R.]

SWEET CLOVER IN KANSAS.

I have grown sweet clover for four years. I first got 4 lbs. from James Vick, but the chickens destroyed most of it: but I saved some seed. Last year I raised about 1½ acres of seed which turned out well. It would average about 4½ to 5 ft. high. When it was just in its prime I had a boy cultivating corn and trying to fish at the same time—two jobs that never would work together right. However, the horses got frightened and ran away. They made good time till they got to the sweet-clover patch, which they

had to cross, but that was too much for them. The dense growth of clover threw both horses down and stopped them, breaking the tongue out of the sulky cultivator. If the clover had not been there I think they would have run right into the barbed-wire fence and perhaps ruined one or both horses. I don't think that any two-horse team with a vehicle could run through the length of that clover-patch.

I sow early in the spring, about 10 lbs. of seed to the acre, with oats; but I think it is better alone. I am saving about two bushels of seed to sow in the corn at the last cultivating. I tried about four acres about the last of August, 1895, but it did not come up. Horses like it first rate when they get used to it. Bees won't work on any thing else while the sweet clover is in blossom. JOSEPH SHAW.

Strong City, Kan., March 23.

Farmers are beginning to find out that sweet clover is a valuable plant besides being a good honey-plant. C. H. DIBBERN & SON.

Milan, Ill., Mar. 22.

CROSS-FERTILIZATION OF FRUIT BLOSSOMS BY BEES.

As to the honey-bees as an aid to fertilization, we fruit-growers of Burlington Co., N. J., encourage the rearing of the honey-bee for purposes of fertilization. We find that some varieties of pears will not bear at all unless cross-fertilized by the bees with other varieties of pears; also, that all variety of fruits and berries are greatly benefited by the same process of fertilizing; and it has been clearly proven with us that, the more honey-bees, the more and better fruit and berries we have; and, as the gentleman in England mentioned in GLEANINGS, Feb. 15, we now want the honey-bee with us. They work for us for nothing, and board themselves. LEWIS WILLIAMS.

Parry, New Jersey.

DOUBLE-WALLED HIVES MORE ROBBER PROOF THAN SINGLE-WALLED.

Is it not true that a chaff hive is a partial safeguard against robbing? I commenced bee-keeping some twenty years ago with black bees, in American single-walled hives. Robber bees, from a distance, were so annoying and so persistent in their attacks that sometimes my best colonies would succumb. I was disheartened, and sold my stock. Not being satisfied without bees, I commenced again, with Italians and chaff hives, walls five inches thick, and have but little trouble with robbing since. I have attributed it largely to the change of hives. The stores, being farther away, are not quite so tempting; and the gauntlet to run (five inches instead of one) is not so promising. You may say it is the bees; but there being blacks near by, I can not keep mine pure. Some of them get black; still, they are proof against robbers. I prefer not to have them warmed up and tempted out the first spring sunshine, to be chilled and lost, but would rather keep them indoors until the air is warm enough to let them fly and return, without freeze or chill, and thus measurably prevent spring dwindling. Double hives or none for me. J. D. GILL.

Philipsburg, Pa., Mar. 24.

DOUBLE VS. SINGLE-WALLED HIVES FOR OUTDOOR WINTERING.

Dr. Miller's answer to George L. Vinal's question on page 223 has been somewhat of a puzzler to me. I can hardly believe that the doctor would wish to go on record as an advocate of single-walled as against double-walled chaff-packed hives for wintering on summer stands, especially where the thermometer drops to 20 below zero. If I am not mistaken, the experiments at the experiment apiary of Michigan, which the doctor refers to, was not a question of wintering, but only of spring protection of bees that were wintered in the cellar.

My own experience in the use of double-walled chaff-packed hives, covering a period of 17 years, a part of that time where the thermometer frequently dropped to 38 below zero, and remained below zero for weeks at a time, has forced me to the conclusion that, all things considered, they are a little safer than any cellar. I would not attempt to winter bees in single-walled hives on summer stands where the thermometer drops to 20 below zero.

The increased weight, which Dr. M. objects to, is not so serious an objection, after all, as the Dovetailed chaff hive is but little if any heavier than the common ten-frame hive. If I am mistaken in the above conclusions, will the doctor please set me right? J. E. HAND.

Wakeman, O., Apr. 10.

[Your ideas coincide with mine. The double-walled Dovetailed chaff hive, made of ⅜-inch lumber, is but a trifle heavier than the single-walled hive. It costs a trifle more, but this will be more than offset by the better condition in the spring, even if the hives are put indoors for winter. This hive can be put in the cellar, and handled as easily as the single-walled hives; and although it allows two inches of packing all around, it will take up in the cellar only about a third more room. It has been tested for several winters outdoors, with the best of results.—ED.]

HEALTHY BEE-STINGS; HEALTHY MAN.

Early this year you suggested in GLEANINGS a desire for reports in personal experience of bee-stings. I thought of replying soon, but just about that time I had an uncomfortable visit from that throttling fiend the grip, which persuaded me to postpone the contemplated reply. But now that I have apparently overcome the stubborn garroter I briefly state that my frequent and pungent experiences, both with Italian and German—I can't for the life of me see a particle of difference in their hilarious par-

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tiality—I gratefully report that their stings, in my case, are followed by neither excessive pain nor swelling, being little more than the average effort of a healthy Jersey skeeter. But the singular and (to me) delightful experience is that their hypodermic injections afford a sense of rejuvenation—a sort of physical "brace" ensues, which lasts for several days, as from the result of some powerful tonic. The dose being inadvertently repeated at comparatively short intervals—about as often as I attempt to investigate their social relation—keeps me in comparatively high-stepping condition. I long for the warm spring sunshine that will encourage the colonies to bask in full force, hoping that a few well-directed, deeply placed, barb-pointed, heavy-laden propulsions from *Apis mellifica* may restore me to that degree of normal vitality which I feel nothing else can so well accomplish. EM DEE.

[When you get stung as many times as some of us, you will long no more for that "normal vitality." It is possible that they do, in moderate doses, at not too frequent intervals, act as a sort of tonic, aside from the muscular activity that usually takes place immediately after the sting.—ED.]

PLURALITY OF LAYING WORKER-CELLS.

Dr. Miller seems anxious to be disputed with regard to a plurality of laying worker-cells. I can accommodate him, as I've repeatedly seen that phenomenon among black bees which I attended for a neighbor in Iowa some years ago. I have had but very little trouble with the "varmints" in my own apiary, which has been strongly Italian.

SUGAR HONEY.

In the *Orange Judd Farmer* of Feb. 15, under the title of "Source of Fats in Butter," by Henry Stewart, who is surely good authority, I find the following: "When cows were fed on cotton-seed meal, the influence of the cotton-oil in the butter was so pronounced that chemical analysis showed distinctly no difference except in degree between butter so made and the oleo." The above may contain a suggestion to those who have defended the practice of feeding sugar syrup of any kind to bees with the expectation that it will be "digested" into honey.

SOURED HONEY.

By the way, a former neighbor of mine had a quantity of thin, half-ripened extracted honey, one year, which soured. He kept it over until the next season, and fed it back, saying that "the bees would fix it over some way." The result, as might be expected, was the spoiling of his next season's crop, and the ruin, to a great extent, of the market for extracted honey in that section of country.

BURDETTE HASSETT.

Reliance, Va., March 19.

A HONEY THAT WILL NOT CANDY.

Mr. C. F. Hochstein wants to know how to prevent honey from candying. That does not trouble the bee-keepers of this district, as the tupelo honey we get I have never yet known to candy, and is for that reason largely used among dealers in the North to mix with California white-sage honey.

BISULPHIDE OF CARBON; HOW TO PRESERVE COMBS WITH IT.

To those who have empty combs to save from the moth, a very easy way is to put them in empty Dovetail hives, piled one above the other, and made air-tight by pasting strips of paper around the places where they touch, putting an empty hive on the top, then pasting paper over the top of that, having first put inside on top of the frames a vessel containing about a gill of bisulphide of carbon — or, if you have an air-tight room, the same end may be attained by placing more of the bisulphide of carbon near the roof, care being taken, of course, not to go near with a light.

HOW TO LOCATE THE HIVE FROM WHICH A SWARM COMES.

It sometimes happens that a swarm comes out and you are not able to locate the hive from which it came. This may be easily done by taking a handful of bees from the swarm and dusting them with flour, removing them some little distance from the place where the swarm clustered before letting them fly. A few minutes' watching of the alighting-boards will give the desired information by the incoming of the whitened bees. E. B. MANN.

Wewahitchka, Fla., April 11.

LOVED AND BEE-LOVED.

By Ellery Krum.

Barlow Skraggs had fifteen stands
Ov fine bees what had five bands
Round thair bodies; and they rolled
In the hunny till he sold
Several thousand pounds. The gold
He invested in a lot
Clost to town, and on the spot
Built the nicest, neatest cot
Ever seen 'bout there. He got
Sort o' lonesome like till a
Fair Eugenia crost his way —
Courted her by telefone.
'Fore long she bekum his own
Dear wife; meanwhile yeller bees
Sung love tunes to every breeze
Passin' by, and chucked each gum
Full ov hunny; then built sum
On the outside, clean around.
One piece purt nigh touched the ground
Underneath the bottom-board;
Never sich a krop wuz stored
Up by bees. Skraggs thought it queer
They should do so well that year—
Guessed he would investigate
Whare thay worked so long and late,
When behold! that telefone,
Over which he won his own
Sweet Eugenia, proved to be
Jist a paradise!—You see
Them bees built their combs up higher
Frum the *taffy* on the wire!

Alexandria, Ind.

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So far as I can gather from reports, bees have wintered unusually well all over the country.

In this issue our Honey Column is based on the Washington grading. All of our honey merchants have been requested to make their quotations according to this grading. It may not be perfect, but it is better than nothing at all. In the meantime, if it shall seem desirable to make some slight changes they can be made if approved by the fraternity at large.

Judging by the way the orders are coming in for the Boardman feeder, it is evident that the plan will be thoroughly tried this coming season. I wish our subscribers would take careful notes, and be ready to report after the season, whether such feeding pays in dollars and cents—that is, whether, all things considered, they think their pocketbook is a little fatter after the season than it would have been had they proceeded in the old way. The time of feeding, waste of bee energy, as referred to in another column, amount of surplus honey, etc., must all be figured in.

We print 16 extra pages this time. We have had some articles in type, as you will see by this issue, that were received in October, but which, owing to the crowded condition of our columns, were awaiting a place. Articles are held back, not necessarily because they are less valuable than something else which we publish as soon as received, but because their subject-matter is of such a nature that they can be held over without being out of date or out of season. We are thus enabled to print articles immediately, which, if held over, would be out of date and useless. A few of the former appear in this issue—one from Mr. E. France, one from our old friend and correspondent, Dr. J. W. Porter, and one from Mr. B. Taylor.

A NEW BEE-KEEPERS' UNION.

At the risk of putting my foot in it I am going to make another suggestion, or, more correctly, "amalgamate" the plans suggested by me before, and those suggested by Bro. York. If the amalgamation of the Bee-keepers' Union with the North American is not wise, then don't do it. Let the North American stand just as it is. Then I would have the Bee-keepers' Union so modified in its constitution and in its plan of operation that it shall have annual meetings, elect officers, discuss problems of protection to bee keepers, and also those that have come before the North American—in a word, take in *all* the interests that concern the honey business.

It is evident that it is going to make trouble to try to force the amalgamation of the North American and Union. One society will have all it can do to take care of the affairs of one country, without trying to spread itself all over the continent; and a new union or society can just as well do the work formerly done by the two existing organizations.

I should like to hear from our readers, especially members of the Bee-keepers' Union, in an informal way. If it appears to be sanctioned, then the Manager of the Union can take the matter up in proper form, and have it acted upon.

When Mr. Hutchinson proposed the matter of amalgamation of the two societies, and the rest of us fell in with that plan, the idea, as I understood it, was not so much amalgamation as that we did not need two societies. Almost the only objection against amalgamation is the idea of making the Union international. By the plan above proposed, the Union will remain national; and yet the ultimatum that most of us desire to obtain—annual meetings and have one society do all the work that was formerly done by the two—can be accomplished. In the meantime, the old North American can have annual meetings or triennial meetings, as suggested by Bro. York, or disband.

PORTER'S CRITICISM ON GLEANINGS.

As spoken of elsewhere in this issue, there appears a very friendly criticism on Gleanings. I intended to add a footnote; but the article was made up before such a note could be put in. Two or three misconceptions occur in the article, which should, perhaps, be corrected. Mr. Porter speaks of the various expenses entailed in getting out a journal, and alludes to a possible loss of $3000 on unpaid subscriptions. I would not have the impression go abroad that we lose that much annually on deadheads. Our list is practically all paid up, and I do not think we have 100 deadheads—those from whom it is impossible to make any collections—out of our 9000 subscribers. We never force collections, but only politely ask for the subscription money; and if that is not forthcoming, the names are dropped. So far, about 100 a year is about the total number of those who entirely ignore all such requests, and are dropped as deadheads.

Mr. Porter speaks of defective prints. This may be (and probably was) caused by a single defective impression. Sometimes a printed sheet will not be properly inked; and, again, sheets will go out before sufficient overlays have been made on the press to get the proper impression. What Mr. Porter refers to is something rather accidental, and out of the ordinary, rather than general.

His ideas on designs for the cover of the journal would be, if put upon paper, rather

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tame and crude. The scheme of putting a queen or bees, one each, upon the four corners of a bee journal or catalog is an old chestnut. The only real criticism that I think can be made on the design we are now using on our cover is, perhaps, that it is a little overloaded. But this is largely a matter of taste. We have changed the tint of our paper to a light pale blue, as our readers will see, and hence the effect of the design will be much better.

BEE-KEEPER FRED ANDERSON.

SOME time ago, when the Rambler articles were discontinued, I promised that the Rambler would furnish us something new, but did not state definitely what it would be. Believing that Mr. Martin had the talent and mate-

JOHN H. MARTIN, TRAVELER AND AUTHOR.

rial for a good bee-keeping story, I requested him to turn his attention in that direction. He at first modestly protested, but said he would try, that after he had written the first few chapters, if he did not throw them in the fire, he would submit them to me. It is sufficient to say that the story was begun and the first chapters placed in my hands.

The plot is laid in California; the hero is a bee-keeper; the writer is the Rambler, and the artist is R. V. Murray, whose inimitable sketches have been admired by all. The story is interesting, thrilling, instructive, and full of droll incidents so characteristic of that Rambler man. Some new phases of California life, especially along the line of bee-keeping, are brought out; and while the story is instructive and interesting, a strong moral tone pervades it.

The first half of the first chapter appears in this number. When our space is a little less crowded we shall put in a whole chapter in each issue; and John H. Martin, the quiet-mannered man, the bee-keeper, traveler, and writer, will be found to be a story-writer of no mean order.

APICULTURAL EXPERIMENTS.

THE Twenty-first Annual Report of the Ontario Agricultural College, located at Guelph, Ontario, Can., has been received. But the part that particularly interests bee-keepers is the report of the apiculturist, Mr. R. F. Holtermann, covering an interesting series of experiments. Not having space to go over this report in detail I shall have to go over most subjects briefly.

FEEDING THE BEES.

A number of colonies were fed sugar syrup, with the Boardman entrance-feeder, and the feed was given a little above blood heat. The results are tabulated, and the experimenter observes that "there is a considerable difference between the first weight of the hive, plus the syrup, and the actual weight six days after the last syrup was stored. The difference in weight may be attributed to evaporation, the consumption of stores which goes on all the time under natural conditions, and the increased consumption likely to go on whenever the bees are under the excitement or stimulus of storing."

The conclusion is thus stated:

(1) That there is a greater difference between the weight of stores supplied to the bees in the feeders, and the increase in the weight of the hive. There is a loss which can not be explained in any satisfactory way.

(2) That it will not pay to extract the honey with a view to making a profit, and supply the bees with sugar syrup for winter.

(3) That, when feeding has to be resorted to, the strong colonies should be given sufficient comb and stores to cover their own wants, and, in addition, supply the weaker colonies with combs of sealed stores.

SEALED COVERS OR UPWARD VENTILATION.

I haven't the space to go into details; but the experiment of wintering two sets of colonies of ten each in clamps showed that the set having sealed covers did not winter nearly as well as those having upward ventilation. This agrees with the reports of two years ago.

COMB FOUNDATION.

Under this heading the experimenter gives some interesting results; and, so far as I know, he proceeds upon methods new and original. I can do no better than to quote nearly all he has to say on this subject:

The use of comb foundation has become general; in fact, few, if any, keeping bees in the movable-frame hive, attempt to do without it. At present, comb honey, owing to the quality of the comb foundation, is not generally of a kind satisfactory to the consumer. Although it is desirable to get a foundation which, when utilized and added to by the bees, gives a comb as thin as the natural one, many claim that comb a trifle heavier is not noticed by consumers. When, however, the base and bottoms of side walls are materially thickened, and the comb has an artificial appearance, and the wax does not crumble when the comb is broken, the result is that the consumer objects, and the objection is intensified by the comparatively harmless nature of the change. Again, comb foundation and wax are wasted in the extra thickness; and this is no small item, as it is generally worth fifty to sixty cents per pound.

In our experiments, observations were taken along various lines—*first*, as to what extent, if any, the bees thin the base and side wall of the various thicknesses and kinds of comb foundation. Measurements were made, whenever possible, of the weight of foundation compared with the number of square feet, and the thickness of the base of foun-

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dation. Measurements were taken of the comb at the base, the side wall close to the hive, and half an inch up the side wall. The comb was put on ice to harden it for the purpose of more accurate measurement; and three measurements were taken in this case.

Again, to see just how the bees utilized the comb foundation, three tanks of melted wax were prepared. One was colored with a preparation of alkanet, another with a preparation of carbon, and the third was pure beeswax, uncolored. The various stages in the manufacture of comb foundation were carried out, giving comb foundation from each tank ten, twelve, and fifteen feet square to the pound.

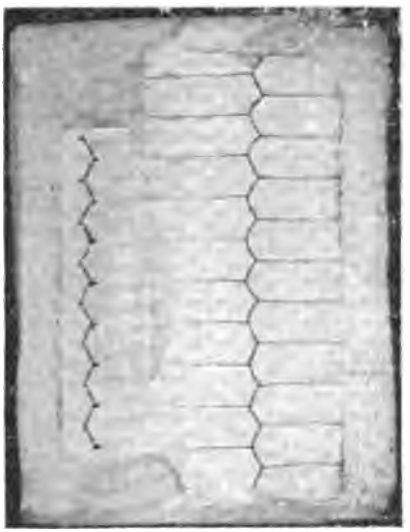

FIG. 1 (c)—giving a side view of comb foundation, 15 sq. ft. per pound; and the same after the comb has been completed and capped by the bees. The honey has been extracted, and washed away from the comb, and a section cut down, which, after a thorough drying, has been filled with plaster of Paris.

These were placed side by side, and drawn out in the upper stories by the bees. It was manifested in various ways that the bees objected to the alkanet, so this kind was discarded. To the foundation, colored black with the preparation of carbon, the bees did not object. The object in placing foundation made of ordinary wax alongside of the colored, was to make measurements of each kind when drawn out by the bees. The measurements of the colored and uncolored, being identical, gave us a basis for the statement that the bees did not object to this preparation; and the method of drawing this out was identical with that of ordinary foundation. The base and lower part of the comb were not, as we might expect, of a black color, and the fresh and added wax white. Instead there is a regular graduation from black at the base to white at the top of the cell. The heavier the foundation, the darker the base and adjoining side wall.

From the above it would appear reasonable to expect that the bees keep adding scales of newly secreted wax and then pulling the side wall, thus decreasing gradually the percentage of colored wax. We also conclude that the quality of wax used in the foundation has an influence, not only on the base, but, to a certain extent, in almost the entire wall of the cell. The heavier the foundation, the greater the influence on the side wall. Again, notes were taken daily when the bees were beginning to draw out the foundation; and although the heavier foundation was scattered about in the various parts of the upper stories, they gave the preference to the heavier foundation, working on it first. Great caution must, of course, be observed in coming to conclusions. The bees, if the heavier foundation had been taken away, might have been almost as willing to go to work at once upon the lighter grade. At present no way appears open for conducting a satisfactory experiment to prove any thing in this direction. The measurements taken at the base of the wall, and half an inch from the base, all tend to show that the wall is thicker at the base, and tapers, becoming thinner at the mouth. So far as I am aware, no one has ever made such measurements.

The "Vandeusen" is a flat-bottom (unnatural) foundation. The various specimens of this kind which were put into the sections were partially covered to prevent the bees from touching the covered portion. The remainder was left to the bees. In every case the bees changed the base from flat-bottom to natural. I have adopted a new method.

EXPERIMENTS WITH FIVE-BANDED ITALIAN BEES.

This is summed up in the following deductions:

1st. They are below the average as to wintering qualities.

2d. They are short-lived, probably because of a high-strung temperament.

3d. They are prolific.

4th. They are gentle, unless when queenless.

5th. They are inclined to rob.

In conclusion, I may say that the Ontario Agricultural and Experimental Union also conducted cooperative experiments with these bees. Nine successful experiments were made, and, with the exception of one experiment, the above results were indorsed.

There are three other engravings similar to the one above, which I will give in our next, but which for want of room we omit in this issue.

DEATH OF MRS. A. J. COOK.

WE have for some time been aware that the wife of our good friend Prof. A. J. Cook was not long destined for this world. It has been my good fortune to be rather intimately acquainted with the professor's beautiful family for quite a good many years, and I have always regarded Mrs. Cook as one of God's own gentlewomen. I have seen her amid trying seasons. I have been with her and her good husband and their two children, at home and abroad. You know it was my good pleasure to be with them a part of the time on that trip to California; and from first to last I have always been impressed with the fact that Mrs. Cook was one of the world's ministering angels whom we perhaps never fully appreciate until God has called them away. The following, from our bereaved friend, was perhaps not intended for publication; but I feel so sure all of the friends will be so glad to see it I take the liberty of giving it entire.—A.I.R.]

Dear Mr. Root:—The beloved wife left us last Thursday, the 16th. The last few hours were full of suffering and agony, and so we rejoiced in the release. You knew her beautiful spirit, and can feel for us with this burden of sorrow resting upon us. I never knew one more true and sincere, or more thoughtful for others' comfort. Her favorite text in her long days of sickness, with no promise of recovery, was: "Be still, and know that I am God." She was serenely quiet, and never made even a whispered complaint; and God was very good to her. So, while we could not pass the river with her, she was not alone. Her memory will be an inspiration to us in all the coming years. To see such a leave-taking makes immortality sure. We were all here. Burt is about well again, and goes east about May 1st. Sorrowfully but truly,

Claremont, Cal., April 20. A. J. COOK.

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Take care of him; and whatsoever thou spendest more, when I come again I will repay thee.—LUKE 10:35.

Professors of religion are often criticised because they do not make a more practical use of what they profess. Our enemies say we talk beautifully in the prayer meeting; but when it comes to putting these very ideas into practice in every-day life we forget all about it. Well, there may be some truth in this. The religion of Christ Jesus goes against the grain. It is not natural to us. We are human, and Christ's teachings are divine.

There is one class of neighbors that we have had considerable to do with lately. In fact, I suppose most of you see more or less of them. I allude to the tramp element. Come to think of it, I do not know that they *are* neighbors after all. Some of them would be neighborly, and once in a while we are forced to the conclusion that they *are* our neighbors, although a good deal of the time it is a hard matter to decide just what true Christianity would say we ought to do in regard to them. Perhaps I have told you before that we have an arrangement here at the factory to feed everybody who is willing to work for his daily bread. No matter who comes, nor how many come at once, if they are willing to work an hour in the lumber yard, or in unloading coal, we furnish them, for such services, a meal of victuals—all they want to eat. This is so well understood that the neighbors far and near tell these people to go right over to Root's factory, and the women-folks there will get him up a good substantial meal, providing he first works one hour.

Do you say this is generous? Well, it might be if the tramps would avail themselves of the privilege. But they do not regard it as a privilege. A month ago I was thinking of making the statement public that not one in a hundred of these fellows would work for a living, even if he had a chance. Sometimes they get mad if you suggest it. One fellow said to Mrs. Root, in an insolent way, "I wonder if you think I am going to shovel coal for an hour just for something to eat." And he straightened back on his dignity, and went off offended. A great many times they ask what *kind* of work. When she tells them it will probably be shoveling coal they invariably go away in some other direction. Perhaps I should say *almost* invariably. During the severe weather in the month of March, however, something happened, I do not know just what, so that quite a few consented to work. Oh! by the way, some of you may suggest that it is hard-hearted and cruel to require a hungry man to shovel coal for an hour when he may not have had sufficient food for perhaps a whole day. Well, it *is* hard; but every time I have tried feeding these fellows first, and letting them work afterward, I have been swindled—at least, *almost* every time. They make some pretext or excuse like this: One fellow talked so very honest and fair that I gave him his meal first. After he had been fed, instead of being thankful he seemed to be very much inclined to be overbearing. I told him to go and assist some men off in a certain direction. After he had asked them all around for a "chaw of tobacco," and they had told him they did not use it, and that Mr. Root did not like any of his men to use it, he went away with an oath, declaring that they wouldn't catch him working even an hour for any man so "narrow-minded."

Well, along in March, as I was telling you, there was a carload of paper to be run on the trucks into the press-room. Our men were all busy, and three strangers were permitted to do the job. They worked so well that we gave them their meals for several days for doing jobs of this kind. They were a better-looking set of fellows than the average tramp, and better behaved. They took hold with such energy and muscular vigor that my heart warmed toward them. Finally some more came along; and as work was pressing we decided to give them a trial. We had just finished our dinner, and it would be less trouble for the women-folks to feed the whole of them than to get up a meal an hour later; besides, Jacob said his work was not quite ready. They all declared they would work all right if they had their dinner first. I looked into their faces, and told them what bad luck I had had, and every one of them seemed like men who would not be guilty of swindling the man who had befriended them. After they had washed their faces and brushed their hair they looked quite respectable. I was in a big hurry, opened the door of the dining-room, and told them to go in. Pretty soon Mrs. S. reminded me that there were *seven* men waiting for their meals, instead of *four*. Three more than I had noticed had taken advantage of the fact that I had so many to direct all at once, and slipped in unobserved. It seemed too bad to make them get up from the table and go away; besides, I could not tell which were the original ones whom I had bargained with and who were the others. I asked them again if they would all seven work for us a good honest hour. They said they would. I left them, and forgot all about the matter. During the afternoon, however, there seemed to be a good deal of merriment in regard to my gang of tramps. When I asked for an explanation, the foreman of the lumber-yard said that, about fifteen minutes after they commenced work, a slow-moving freight train passed by, and five of the seven, with a sort of Indian war-whoop, left their work, ran and jumped on the moving train, and that was the last of them. I was not very much surprised. I have had the same experience so often that I blamed myself for being humbugged once more. A few days ago I said to my brother-in-law, who is a railroad man:

"Look here, Mr. Holmes, are you in the habit of carrying tramps from one town to another all over the country, free of charge, without so much as even a thank you?"

"Yes, that is just exactly what we and every other railroad in the United States are doing."

"Well, but why do you do it? Isn't there any way to put a stop to such lawless, reckless vandalism?"

"I don't know any way. If you do, I wish you would tell us how. If they jump on to the passenger trains in this way the conductors and porters can put them off; but how is the conductor on a freight train to keep men from jumping on if they want to? He has not time to stop and quarrel with tramps, especially where they are two to one. It is not the engineer's business, and the brakemen have already been hurt without doing any particular good, as you may know if you read the papers.* These fellows laugh in your face when you talk

*Only last summer a contractor, who visited Medina and made a bid on paving our streets, was killed on his way home, and it was supposed to be the work of a lot of tramps. In order to reach his home that night he took passage on a freight train. A lot of tramps climbed on and occupied the same car, and during the night they overpowered him, took his money, and threw him off the train. So far as I know, they have never been apprehended.

about law. Putting them in jail does not do any good, for that is just what suits them best, especially in the winter time when it is too cold to be outdoors. I agree with you that it is a shame and a disgrace to our country; but what are you going to do about it?"

Just then it occurred to me that I had seen notices in the papers, of tramps being maimed or killed while stealing rides on the trains; and nobody seems to care whether they are killed or not, and I don't know that they care very much themselves either. All manliness, pride, intelligence, or interest in any thing except to satisfy their animal wants, seems to have been lost, or at least mostly obliterated.

A few days ago a messenger boy at our station, a bright little chap who carries telegrams and other messages all over town on his wheel, came to me saying there was a tramp over at the depot, with a broken leg, and that nobody would take care of him or seemed to care any thing about it.

"Why, go and inform the infirmary director, and he will certainly see that the tramp has proper attention."

"Well, that is just what I have done, Mr. Root; but he says he does not belong in our town nor in our county, and he can not do any thing for him without consulting the board of directors. He has been there already since seven o'clock this morning."

"Was his leg broken by climbing on the train?" I asked.

I was busy that morning, and had not time to think of tramps or of anybody else, and I do not know but I opened my lips to say something like this:

"If he got his leg broken by jumping on the cars, contrary to law, it served him right."

I guess it must have been Satan who whispered to me to add, "Let him lie there until he gets enough of it; he is just meeting his own deserts. It is good enough for him, and it is no affair of mine, anyway."

By this time I began to be startled. I was thoroughly disgusted with Satan, and mentally bade him shut up. I do not know but I felt like adding, "Get thee behind me, Satan." And then perhaps it was to let Satan see that I was not that sort of man *at all*, I turned to "Toney," and said:

"Toney, you get some help; have that man taken over to the hotel; get a doctor, and fix up his leg, and tell them all to bring the bill, and I will pay it."

Then I started to do several things that ought to have been done while I was talking there. To tell the truth, I was a little surprised when a pleasant feeling came over me, and I did not know just why it came, either. Then somebody seemed to whisper the words at the head of my talk to-day, and I was almost startled to think that I had unconsciously used almost the language of the good Samaritan: "Take care of him; and whatsoever thou spendest more, when I come again I will repay thee." I did not have any thing to pay, after all. Toney did as I told him; but by the time the doctor got around, the infirmary director had probably come to about the same conclusion that I had. So they fixed up the tramp and sent him to a hospital in Cleveland.

In conclusion let me say that it is, without question or word of debate, our duty, of course, to take care of an enemy, a tramp, an escaped criminal, or a *highwayman*, who is wounded and helpless, no matter how he got into such a plight. When the matter was brought up at our Saturday prayer-meeting, one good brother said something like this:

"Brothers and sisters, it certainly is high time that this lawless element in our land were looked after; but I think Mr. Root is right when he says that those who will not work shall not eat; and I am really afraid it is the good people of our land—may be the Christian people—who are *paying a premium* on this sort of tramp life by feeding indiscriminately everybody who comes along. These fellows often boast that they can get a living, without work. They have learned the knack of getting on and off from moving trains. The railroad companies are helpless, therefore the tramps roam from one end of the land to the other, having a good time, and we Christian people support and encourage them in it. They toil not, neither do they spin; but hard-working people feed them. Is it any wonder that this class is increasing to an enormous extent?"

Last Thanksgiving day, just as we were sitting down to our dinner over at Mr. Calvert's a man came to the door for something to eat. My daughter, Mrs. Calvert, in order to get rid of him without worrying me to hunt up work for him on that day, when the factory was shut down, gave him a nice slice of turkey, and some bread and potatoes—in fact, quite a comfortable Thanksgiving dinner. As he passed by the window where we were sitting at our meal, he raised his hat and thanked us very graciously. Now this fellow was tolerably well dressed. The hat he raised was almost brand-new; in fact, he was better dressed than A. I. Root is most of the time. But he had discovered that he could get a good meal of victuals without paying a cent for it, if he met the right sort of people and practiced the arts he had learned in the way of getting into people's good graces. Giving him a dinner was a trifling thing, you say. But is it not true that trifling things like this may be the cause of inducing thousands of able-bodied men to throw up work and take up a tramp life?

HIGH PRESSURE GARDENING

SUB-IRRIGATION.

The bed described on page 29, Jan. 1, is now, during the middle of April, giving us some of the finest strawberries I ever raised anywhere. The foliage is beautiful, bright, and clean. Under the influence of plenty of water, protection from severe weather by means of glass, and steam underneath the bed to give the requisite heat, we have complete success; and during the past ten days of almost July weather in the month of April, with scarcely a drop of rain, the sub-irrigating beds have been working to perfection. By the way, in our correspondence, a friend, Mr. E. W. Turner, of Newton Falls, O., sends us a little home-made woodcut showing how he applies sub-irrigation to growing vegetable-plants, etc. We give the cut and his description.

A NEW WAY TO GROW CELERY—BY SUB-IRRIGATION.

You will see by the above cut its application in celery or cauliflower growing, where moisture is the essential factor. Its cost is nominal compared with the results you will gain by its use.

The appliances necessary are a common ¾-inch black gas-pipe. Bend up one end 8 inches; screw on

a paint-keg or bucket—any thing that will hold water; drill or punch ½-inch holes 8 inches apart on the upper side; plug up hole in lower end of pipe; place the pipe in the trench; cover over with moss or woods soil to the depth of 2 inches. This will hold moisture; put on 2 inches of very rich soil; set your plants 6 inches apart over the pipe; pour water into the tank when you wish to water plants.

Newton Falls, O. E. W. TURNER.

This arrangement makes the whole matter exceedingly plain. On a larger scale we use the cheaper small-sized tiles instead of the iron pipe; and the joints between the tiles (closed with cement except on top) take the place of the holes. By the way, the idea of covering the openings for water with moss is a very important matter. With clay soils the openings are liable to be stopped, and thus give unequal watering. The question keeps coming up. If this matter is such a wonderful success under glass, why not apply it to open-air work? I have before explained the difficulties in so doing; but just now I hear of one case where the thing has been made a success. A man in our own county has a swamp which he reclaimed by tile-draining. The entire outlet to the swamp is through one large main tile. Well, during a dry time he shuts up this one opening, and lets the water back up in the swamp as it did before there was any outlet. This accomplishes the whole thing to perfection. You see, the swamp was originally a depression with an impervious soil under and around it, so that it holds water. Thus, you see, nature has obviated the necessity of a water-tight bed of cement, boards, etc. When heavy rains come suddenly, the outlet is opened wide; and this permits the water to get away before it can do any damage to the crop. Of course, somebody must be on hand to manipulate the gate that holds the water in or lets it out, or trouble would result. There are many such swamps as this, and it seems to me it is high time they should be utilized for sub-irrigation. Mr. W. S. Turner, now in my employ, and who formerly assisted in developing sub-irrigation in greenhouses at the Ohio Experiment Station, at Columbus, has told me in regard to this reclaimed swamp, and I propose visiting it soon. The owner arranged the plant under Mr. Turner's instructions. It was a complete success last season in producing enormous crops during our severe drouth. A spring near by furnishes the water to fill it up during dry seasons. During hot sultry weather, accompanied by hot drying winds, such as we have had for nearly two weeks, sub irrigation seems to be almost the only kind of irrigation that succeeds perfectly. Surface watering is just a vexation. In fact, some of our lettuce-beds would suffer for water, even if we left the hose running almost constantly; that is, the water would get away through the cracks in the dry soil, scarcely wetting up the bed at all. What we need is some sort of tight box or reservoir that will hold the water so that not a drop be wasted. This being secured, even a small stream will in time fill up the bed and raise the water level, just as near the surface as we want it; and it does not take very many inches of soil, if well enriched, to produce a crop. Those enormous strawberries, with leaves as big as your hand, and berries almost like hens' eggs, have not more than 6 inches of soil to grow in; and there is a plant on every square foot of surface, right over the bed. They are now not only producing lots of large perfect berries, but are sending out thrifty runners at the same time. At this season of the year we get from 20 to 30 cts. a quart for the fruit, which I think will pay well for the glass, sub-irrigation, and steam heat, where exhaust steam may be utilized.

ILLUSTRATING SEED CATALOGS WITH PHOTOGRAPHS FROM REAL LIFE; DWARF ESSEX RAPE; A PICTURE OF IT; SOME FURTHER PARTICULARS.

I have before made mention of the beautiful photographs from real life, to be found in Johnson & Stokes' (Philadelphia) seed catalog. They have kindly loaned me one of the plates illustrating a flock of sheep in a field of Dwarf Essex rape.

The above picture took my eye at once; in fact, I would give something to see some sheep turned into a patch of this new forage-plant, just as it is in the picture. Then I would give something, too, to see them after they had learned to eat it. We extract the following from the catalog of Johnson & Stokes:

Dwarf Essex rape is considered indispensable by the sheep and cattle farmers of Great Britain, and is fast coming into use in this country on account of its rapid growth, being ready to feed in ten weeks from sowing, and producing 25 to 30 tons of

green forage to the acre. It grows to a height of 3 feet, and covers the surface so densely as to smother out all weeds, and to kill quack and other objectionable grasses. It can be sown all through the season; being perfectly hardy it withstands drouth, and will produce a crop in any soil by sowing broadcast at the rate of 5 lbs. to the acre, or in drills or rows 2 feet apart at the rate of 3 lbs. per acre. While unequaled as a pasture for sheep, as a fattening food for all kinds of live stock it is without a rival in point of cheapness or effectiveness.

In addition to it we may mention that it has been tried to a considerable extent here in Northern Ohio. The last season a very severe drouth was rather unfavorable; but for all that, it gave a very large amount of feed, and held out clear into the winter. One man has even put in ten acres, and we had quite a good many orders for the seed, even before we had advertised it. The great secret of its value lies in the fact that it is a relative of the winter kales. You know we sometimes see them in the gardens with their rich dark-green and purplish-green that last clear into the month of February, and sometimes *all winter*. Our Ohio Experiment Station has several times called attention to its value. In answer to some inquiries to Prof. W. J. Green in regard to its blossoms for honey and raising seed he replies: "The Dwarf Essex has never bloomed the same season it was planted, here. We think it requires two seasons, the same as cabbage. We do not know any thing of the value of its bloom for bees." Now, can some of our readers tell us any thing about its value for honey? Where is the seed raised? We judge it is not far away, since it is offered now at quite a low price.

The following is also from the Ohio Experiment Station:

Regarding the Dwarf Essex rape, I have to say that, if sown early in the season, say previous to the middle of June, I believe it is better to plant in drills about 30 inches apart, and cultivate, surface cultivation. In this case two pounds of seed per acre may be used. If sowing or planting after the middle of June on ground on which the weeds were pretty well cleaned out, it will do as well, if not better, sown broadcast, using five pounds per acre. You will find that, seeding later, the plant will grow almost twice as fast as if sown as early as the first or the middle of May. I have grown this plant for three years on the Station farm; have planted early and late, but have not yet had a single plant to blossom the first year. You will find it very similar to the cabbage-plant, and will have to contend with the same enemy, the cabbage aphis. Three years ago our entire crop was destroyed by these insects in a very short time.

I should have said above, that one seed every three to four inches in the row will, if good, make it thick enough, and that the plant will require just enough attention to keep the weeds out, and an earth mulch. The plant will cover the ground much more quickly than the corn-plant, and will, therefore, have a shorter working season.

Wooster, O., April 13. J. F. HICKMAN.

A HOME-MADE WHEEL-HOE; HOW TO MAKE IT AND HOW TO USE IT AFTER IT IS MADE.

Friend Root:—While your brow is still contracted on account of this intrusion, I will try to soften the lines by adding that this letter is not written for any personal gain; and, no matter whether it is of any use to you or not, the intention of the writer is, nevertheless, honest. Cavil not that I say that I understand your motives in life; I do know that the aim of your whole life is to do the world all the good you can; and now I have set about it to make some return for the benefits you have been casting upon the water, and part of which have come to me.

I hand you herewith a home-made weeder, the plan of which was born of necessity. Having diligently tried the several hand-weeders sent out on the market by seed growers I found them all lacking. After two years of trial I went at it, and in a few hours made the one which is shown in the accompanying drawings.

I am of the opinion that, if you have any muck or sandy soil, this little weeder will be just the thing that you have been looking for. I say it will, carefully speaking, do the work of five men behind five hoes. Of course, in making this estimate I suppose that you are nearly as particular as I am about the condition of your ground for gardening. Perhaps you are just as particular. I never allow a plow to be put into my garden unless I am present to watch the work; for when the plowing is done I want to see nothing on the ground but the black dirt. One single straw or stubble on the surface makes me tired; and when all is planted it must be beaten and rolled till it resembles a well-used road after a nice shower. Then with a hand-harrow made by driving 10-penny nails through an inch board, the board to be of a shape and size to suit the fancy, work of pulverizing and weed killing goes on day after day till the drilled plants sufficiently show themselves to permit of following the row with the weeder. True, I find no one to run the wheel to suit me as well as I do it myself; but if pressed for time others use it. You see the little harrow does the same work as the vibrating harrow which you wrote of in your last issue.

I suppose you will want to know how large the garden is; so I reply that I have just an acre, less the house and a little plat of grass surrounding it. It is almost flat, but possibly the east end is 3 or 4 inches lower than the other side. I will reply to your next question, it will take 8 hours to weed the garden (one acre) with the hand-weeder—onions, beets, peas, potatoes, and corn—every thing. These with me are all in drills, absolutely straight.

What I now say you will dispute. This garden is on ground that has been planted constantly to corn and wheat for 27 years without any fertilizing. Of course I am attending to that now; yet the first crop was a good one notwithstanding that strain.

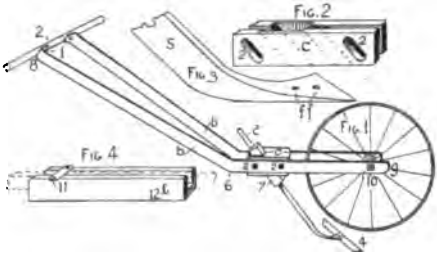
I have so much faith in this plow that I want you to make one and try it yourself. When you have done so you will be pleased with it. Then I wish you would make them for those who can not make them. Remember that the point, or one of the things to keep in mind, is the thinness of the blade, as well as to keep it just as narrow as you can and have it stiff enough not to give bother by bending. It should be quite flexible. Mine is made of the blade of a corn-knife. For most work I set mine so that, when it works, it runs about half an inch under, running so smooth that the ground over the blade is scarcely disturbed. I first thought that I must set it so that it would "rattle" the soil; but I soon found that this was not necessary, as, in sunny weather, all weeds are killed when once gone over. When I see the ground over the blade begin to hump up, that is the sign that it is not cleaning, and I at once relieve it. It will have to be cleaned as often as a hoe does in the same soil and weather. You will see at once that the plow is very light, and easily turned down side up to clean, or to go into the field with. Probably it weighs 5 or 6 pounds. When running close, say to a row of onions, of course you slow your gait; and I generally venture within ¼ inch of the plants.

Now, do try to be consistent and charitable; for you know that, as a rule, people of the East have no great faith in the ability of Westerners. Please do not say that you have tried the same thing made by Ferry, for I tell you the blades set upon their plows are not practical, and are too expensive; and it takes, I believe, four times as much strength to push them. The work of running this plow is no harder than that of drawing ten pounds on a boy's small wagon.

These remarks all apply to "flat" culture; and to me it seems very strange that, in our whole town, I am the only one who follows flat cultivation. Years and years I have neighbors near on all sides who spend as much time on one lot as I do on six. They often harvest the crop with a scythe when it gets too unsightly; and with all the proof that I can offer, with all comparison that I show them, every year they start out with little beds and little short rows, and keep tearing up the ground to let it dry and bake as deep as they stir it; and on this kind of ground they borrow my plow to use among lumps and bumps and old cornstalks and other debris. How is it? Is it because you are such an orator that people tumble to what you say? Why, some people will get mad if I speak of flat culture. But my plow is good only for flat culture. Well, try it. It costs you nothing. I should like to make some one as happy as I am when I use this little weeder.

EXPLANATION OF DIAGRAM.

Showing a home-made plow that has been used by the writer for ten years; entirely practical to those who believe in flat culture and love a clean, well-kept garden. This weeder is designated by the family as the "Prairie Grasshopper." On well-prepared soil, with this weeder one man can easily do the work of seven men with a hoe. In corn and potatoes and other large plants it will cut a swath 12 inches wide as fast as one can walk or run. Having an unused boy's wagon-wheel (iron) the outlay for material was 65 cts.; work done by writer.



PORTER'S HOME-MADE WHEEL-HOE, OR CULTIVATOR.

The parts b b are made of heavy band or wagon-tire iron, 1x⅜ inch. Before bending, each piece should be about 4 ft. long, 2 inches being allowed for making a turn a little more than at right angle at the top where it is fastened to the handle-bar, 1, by a timber-screw. When fastened to the handle-bars, the side pieces b b should be 12 inches apart, and the ends of b b turned in instead of outward. A four-inch hand-hold is left on each side of bars b b. From handle, 2, to Fig. 6 (bend) it should measure 2 ft. 3½ inches; from 6 to 9, 18¼ inches; between bolt-holes, 2 2, 4½ inches. From a line drawn from 9 on to 6 (bend), and extended on as far as handle-bar, from bottom of barb down to such line should measure 15 inches. The wooden block c is made in two pieces; or, rather, after having been made it is sawed in two to admit of pressure on grooved post 7, when nuts on bolts 2 2 are tightened. Bolt-slots in c are elongated for the purpose of adjusting the cutter-blade 4. Block c is 6 inches in length, 2 in depth, and 3 inches wide, or should be about the same width as the length of the hub on the wheel; made of pine or basswood. No. 7 is of hard wood, 1¾x1¾ inches, and 8 or 10 inches long The groove in 7 should be just large enough to admit of blade-bar 5 fitting snug, yet admit of its being moved up or down; and, when just right to do the required work, is fastened in place by set-screw 12, which should be on the lower end, and the groove facing the wheel, as shown more clearly by the shadow of bar 5, placed in position on No. 4. Blade-bar No. 5 is about 1x⅜ inch, pains being taken to so bend it that, when riveted to blade at f f, the lower side shall be parallel with the plane of the blade for 2 or 3 inches back; and the edge of the end where it unites with the blade is brought down to a feather edge, and should be about 6 inches long from the bend to top. The blade may be of any length; but a 12-inch blade suits me best. It shouldn't be over an inch in width, or 1x¼, and just as high tempered as possible, and yet permit it to be sharpened with a file; and the thinner the better till a point is reached where it would be too limber. Set to post so that it will slant, say, one end about 3 inches in advance of the other, entering ground close under wheel.

Ponca, Neb. J. W. PORTER.

THE GAULT RASPBERRY.

The plant I got from you last spring has done nicely. It made some 12 sets. Do they run on the ground? Some of the sprouts grew 5 or 6 feet long. Do they have to have a trellis to run on?

My bees are doing nicely. I lost none last winter.

Towanda, Ill., April 14. S. C. WARE.

No, they do not exactly need a trellis—that is, if they are cut back sufficiently; but where you let them run in order to get tips, the fruit is very apt to be down in the dirt unless you tie to a wire or something similar. We have plenty of reports from those who have succeeded in getting plants from the Gault raspberry; but why does not somebody tell us about the amount of fruit they get? Surely the berry has been before the world long enough so that some one should have a lot of great clusters of nice berries as well as friend Gault and myself. How is it? Does not the plant bear berries "at your house"?

IS IT THE WORK OF THE BEES?—SEE PAGE 132.

A few years ago I bought a package of Henderson's bush lima beans, for which I paid 15c for a package containing 5 beans. I planted them three years before I had enough to use from them. The third year I planted near them a few beans called W. Zula. These were a purplish color, and a runner. When picking a few shell beans from the Henderson's bush lima, to my astonishment some of them were speckled. I picked out all that were marked, and destroyed them. I planted the fourth year none but what were clear white. Last year I noticed they put out a good many runners; and on harvesting them I was astonished to find them all like the sample I send you.

The only colored beans I have raised in the garden are the W. Zula, and the last year a few early Valentine. Is not this the work of the bees?

Clintonville, Wis. DANIEL NOBLE.

The sample beans mailed of the above were speckled Henderson bush lima. Some of them were mottled, with reddish streaks splashed with black. It is either fertilization by the bees or else a sport. I am inclined to think the former, for we have raised Henderson's bush lima, 30 or 40 bushels in a single season, and have never seen a streaked or speckled one.

Health Notes.

WHOLESOME BREAD, AND OTHER MATTERS IN REGARD TO DIET, ETC. FROM OUR OLD FRIEND MRS. L. C. AXTELL.

Dear Mr. Root:—The way I make rusk is to make my whole-wheat flour into bread after what is called potato-ball bread. I gave a description how to make it some two or three years ago. I have tried many ways to make good graham bread, but none gave so good results, nor are so easily made, as the potato-ball bread. The yeast is wholly of potato, and does not sour so easily as other yeast or bread. It rises more quickly, and keeps moist longer, in bread; but all bread made of whole-wheat flour is better the first two days after being made. After that I slice it down and crumble it up fine with my hands, which is easily and quickly done, then pour it into bread baking-pans and set it in the oven to dry, being careful not to brown it much. If browned it gives it a more constipating nature.

When thoroughly dry we put it into a dish, and either eat it dry or slightly moistened with thin cream or new milk for supper. We think it better for us eaten dry, because it causes the saliva to flow and moisten it, which aids digestion. If it is to be cooked or softened before being eaten, then there is no need of crumbling it, as a few minutes of soaking the hard crusts after drying will render them perfectly soft. We like to have the bread crumbled before drying, because it is much easier done than grinding afterward; and if not broken small before being put into the mouth it is apt to injure our gums, whether we have false teeth or not; but if fine, the saliva softens it almost immediately. I have been troubled by indigestion for years, and find it the most easily digested of any food I have ever tried, especially for supper.

MASHED APPLE.

Another equally valuable food is mellow apples pared, sliced, and squeezed to a pulp by the hands. Add a pinch of salt and a little sugar. The squeezing or jamming (not chopping) should be done just before each meal, as they turn dark so soon. Mr. Axtell and I are very fond of them, and find them better for our diet than if cooked or eaten raw between meals. Mashed apples and the dried crumbled bread go well together. The greatest trouble about eating the mashed apple is that it tastes so good one can hardly help eating too much of it, es-

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pecially if made from Tompkins County King apple, which we are using. Unless apples are mellow they are not good when used in this way.

INDIGESTION.

I think from experience that more can be accomplished to aid digestion and cure dyspepsia by never over eating, and chewing the food a long time, than by taking medicine. More harm is done by over-eating than by any thing else. Because a thing tastes good we are apt to think, at the time of eating, it will not hurt us. It is wonderful how long the stomach will bear overloading; but the breakdown will surely come earlier or later.

There are some articles of food that never ought to be made or used, such as cucumber pickles, pickle-lily, and such foods; also lard pie-crusts. Children are made dyspeptics before they are grown, by the use of such foods.

MORE TRUTH THAN POETRY: HOW TO MAKE FARMING PAY.

A little farm that is well fitted
In every nook and corner
With choice fruit-trees and grain, will yield
Ample support to its owner.

With a little apiary of a hundred hives
To save the nectar from flower and tree
That otherwise would go to waste
If not gathered by the bee.

A little flock of fifty hens
(The pure bloods pay the best),
If fed oats, wheat, and a little meat,
With eggs will fill their nest.

One cow or more that gives rich store,
If never kicked and cuffed by men,
Will fill his bucket brimming full,
If given all to eat she can.

But a costly house that's built for eyes,
Whether of free stone, brick, or wood,
Is seldom best for the owner's purse,
Or for his loved ones' highest good.

One dog, one cat, that is enough
To chase the minks and catch the rats
That kill our chicks and eat our grain,
And other foods both this and that.

Of the little leaks that make us poor,
If to succeed we must beware;
To build or buy just what we need,
We should be wise, and act with care.

Whatever stock on the farm is kept,
It always pays to feed well and shelter;
And all farm-tools have a place,
And not left outdoors helter-skelter.

With love and work within our homes,
And to all evil close our doors,
No need of poverty or want;
God's promise is, "All things are yours."

Roseville, Ill., Feb. 17. MRS. L. C. AXTELL.

TOBACCO COLUMN.

A BIT OF PLEASANTRY AND A WONDERFUL TRUTH ALL TOGETHER.

But I am getting into trouble in another direction. I weigh 180 lbs. In other words, I am getting fat and lazy. I used tobacco when I was younger. On January 7, 1884, I quit it; but I never sent for a smoker. I did not use any tobacco for eight years. I kept getting heavier. Then my friends told me to use tobacco and I would get lighter. So I went to smoking. At first I would smoke only a cigar a day; or two or three at most. I still kept getting heavier. Then I started to smoking a pipe. I got then so that I smoked only once a day. With the exception of the time I was eating, I smoked from the time I got up till I went to bed. Still I kept getting heavier and lazier. A couple of weeks ago I started to chewing tobacco too, and I am still getting heavier. But I forgot to say that, during the time I didn't use any tobacco at all, I got married, and we have four little girls. The oldest is a little over six, and is going to school.

I want to give the tobacco a *thorough test* while I am about it. But the trouble now is, my wife is going to send and get chewing gum, and chew, and set the four little girls at it too. I offered to quit if she would put me on the lean-meat and hot-water diet; but she won't do that, for she says if she lets me start that I would starve to death before I would let up on it. Please let me know what to do under the circumstances. A. N. DRAPER.

Over and over again I have been assured by tobacco-users that it was prescribed by the doctor to keep them from being too fat. In other words, they are too healthy, and the doctor said they ought to have a little poison to mix in to keep Dame Nature from putting on too much flesh. I have always been slow to admit that tobacco was a good thing, even in such a case; and I have been greatly pleased to find that riding a wheel will almost invariably dispose of surplus weight; and more recently I have discovered, too, that an exclusive lean-meat diet would do it, so far as I am informed, without a failure. And now friend Draper tells us that tobacco, even when given a "thorough test," as he terms it, is not a cure—at least not in his case. By the way, friend D., is it hardly fair to your wife to persist in using tobacco now when you did not use it at all when you were married? Are you not aware that the nicotine may be poisoning her as well as yourself? Of course, my advice would be to try the lean meat and hot water. You will not starve, for it will be a *far* easier matter to break off than to have to burst the chains of the tobacco habit. By the way, old friend, you may find this tobacco business is something *more* than a joke if you keep on much longer.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

PRINTED LABELS ON WHITE BASSWOOD.

These are for potatoes, strawberries, gardens, greenhouse stock, fruit-trees, etc. They are made of remnants of our white basswood, such as is used for our No. 1 sections, and are sandpapered with the same machinery. More than one of the friends have probably been pleased and astonished at the beauty and plainness of these labels, the jet-black ink contrasting so prettily with the almost snow-white basswood. The sticks they are printed on are 7½ inches long, ⅛ thick, and 1 inch wide. They are made large so that the gardener can readily read the name on the stake at the end of the row without traveling clear over to the stake, and without putting on his spectacles. Prices: 25 cents per 100; $1.50 per 1000. We can not make up 100 of *different kinds* for 25 cts., for the cost of setting up the type would be too much, especially where there is something to be added besides the name of the potato or plant. The plain basswood sticks, without any printing on them at all, will be 15 cts. per 100; 75 cts. per 1000. Samples will be mailed free on application. A liberal discount will be made to nurserymen or florists who make *large* orders.

SEED POTATOES TO BE GIVEN AWAY TO OUR SUBSCRIBERS; ONE DOLLAR PAYS FOR GLEANINGS ONE YEAR, AND A BARREL OF POTATOES (STATE OF MAINE OR BEAUTY OF HEBRON) THROWN IN.

As the planting season is now upon us, and we have quite a stock of a good many kinds of potatoes left, and as some of them will probably have to be given away, we prefer to give them to our subscribers rather than to anybody else. Therefore, whoever sends us $1.00 for GLEANINGS, whether it is to pay up arrearages or subscribe for the future, may select $1.00 worth of potatoes from our list for every dollar that is sent us for GLEANINGS, as long as the supply holds out, you prepaying all postage, express, or freight. This includes *Maule's Early Thoroughbred* with the rest, for we have now a crop almost ready to dig, in the greenhouse, and lots more coming on all the time in cold-frames out-

doors. Perhaps you had better name several varieties when you order, telling which ones you prefer, so that, in case any one variety is sold out, we can send you the next you prefer. We have yet a good stock of Freeman, New Queen, Monroe Seedling, and New Craig; a tolerable stock of Lee's Favorite and Early Ohio. All the rest are gone but small lots. We submit the table with reduced prices.

Season of maturing in order of table, the first named being the earliest.

NAME.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 20	$ 50	$ 50	$ 90	$1 50	$ 2 50	$ 6 00
" Second crop							
Early Ohio	15	35	20	20	50	50	1 25
E. Thoro'bred, Maule's	1 00	3 00	3 00	5 00	7 50	12 50	25 00
Burpee's Extra Early	15	35	20	35	60	1 00	2 50
Freeman	15	35	20	20	50	50	1 25
Lee's Favorite	12			20	30	50	1 25
New Queen	15	35	20	20	30	50	1 25
Monroe Seedling	12			20	30	50	1 25
Beauty of Hebron	12			15	20	35	1 00
State of Maine	12			15	20	35	1 00
Sir William	15	35	20	35	60	1 00	2 50
Rural New Yorker	12			20	30	50	1 25
Carman No. 1	15	35	20	35	60	1 00	2 50
Carman No. 3	40	1 00	40	75	1 25	2 00	4 50
Irish Daisy	12			20	30	50	1 25
Manum's Enormous	40	1 00	40	75	1 25	2 00	4 50
New Craig	15	35	25	45	75	1 25	3 00

Seconds of Lee's Favorite and New Craig (other kinds *sold out*) will be half above prices, which include packages for shipping. Potatoes will be shipped at once, soon as order is received, so long as our stock holds out.

The question may arise, Will the new Thoroughbred grow if the potatoes are sent out just after they have been dug in the greenhouse? They may not grow as readily, therefore you had better keep them until they begin to sprout; then cut them to one eye and plant, and you will have a full stand. If you have a preference for the old potatoes harvested last fall, we will send them if your order reaches us before they are all planted.

P. S.—If you prefer, order what potatoes you want from the above table, and we will send GLEANINGS one year for every dollar you invest in potatoes. Where there will be a saving in freight, the new Craigs may be shipped from C. N. Flansburgh, Leslie, Mich.

"BEST OF ALL" BEANS.

As the prospect is that we shall have quite a stock of these left, we make the following low prices until sold out: Pint, 5 cts.; quart, 8 cts.; peck, 50 cts.; bushel, $1.75. These are worth the above prices for table use, and they can be planted now and on from this time until the first of August, and still give a crop of string beans; and, if the weather is favorable, a crop of dry beans. This bean is not only "Best of All," as a string snap bean, but it is best of all for a green shell bean or for a dry bean, to cook. So far as *quality* is concerned, it is, without question, the best of all for three purposes. The only objection I have ever heard made to it is the color. The pods are green instead of yellow, and the beans themselves are colored instead of white. Notwithstanding this it is the favorite bean all over Florida. The seed we offer is of our own growing, and it germinates beautifully. If wanted by mail, please remember to add 8 cts. per pint or 15 cts. per quart for postage.

VEGETABLE-PLANTS FOR MAY 1.

It is rather late for asparagus roots, but we are still sending them to some extent. Horseradish roots can go at any time. Cabbage-plants are now just in season. We have a splendid stock of both once and twice transplanted of Jersey Wakefield and Early Summer; also a nice stock of both once and twice transplanted Snowball cauliflower. Of onion-plants we have only the Prizetaker at present. Of tomato-plants we have a fine lot of Ignotum, Beauty, Dwarf Champion, New Stone, Buckeye State, and Fordhook Early. We can send any or all of these, both once and twice transplanted. Those twice transplanted will cost more in shipping because of their extra size and large bushy roots; but they will stand a longer shipment, and can hardly fail to grow with any kind of ordinary care. Of celery-plants we have a fine lot, both White Plume and Self-blanching. Sweet-potato plants will be ready by the time this reaches you. Price 40 cts. per 100 or $3.00 per 1000. This includes the Yellow Jersey and the Early Peabody red yam; the two vineless sweet potatoes, General Grant and bunch yam, will be a half more than the above prices. If wanted by mail, add 25 cts. per 100 extra for postage.

FORCING STRAWBERRIES.

At the present time we have no trouble in getting 40 cts. a quart for our first strawberries, and at this price I think they pay very well, including the expense of a bed prepared for sub-irrigation. There ought to be some means for giving a little heat from steam or otherwise. With glass and steam and sub-irrigation it is the easiest thing in the world to force strawberries. Our plants were put out in December, and they were not extra nice ones either; but they are now bearing a prodigious crop. After you once get the bed prepared, the expense is almost nothing. We place them a foot apart from center to center.

CRIMSON CLOVER AND RURAL NEW-YORKER WINTER OATS.

Just as we go to press, April 30, our crimson clover is showing thousands of buds almost ready to bloom. It is away ahead of red clover, you see, and yet it was put on ground that bore a heavy crop last season. That sowed among our early sweet corn is almost as rank as the patch that was put in with buckwheat.

Our Rural New-Yorker oats are also almost ready to head out. On a strip of ground where the snow drifted so deep as to cover it completely, when it was thawed off in other places, the stand is perfect; but about half of the plot that had to endure the tremendous freezing and thawing during the last March and fore part of April, much of it was thrown out. I think it will stand ordinary winters in this locality.

We have Canada field peas for only $1.25 per bushel.

THE BEE-KEEPERS' ARMENIAN FUND.

Contributions up to date are as follows:

Amount previously acknowledged		$56 97
Bee-keeper in Cent. Am.		10 00
Robert Downs	Naugatuck, Conn	5 00
M. D. Hammond	Ellenburg Ctr., N. Y.	5 00
Mrs. J. G. Size	Scarboro, Jct., Can.	1 00
		$77 97

GIVEN-PRESS OUTFIT.

We have two Given presses, complete with plates, which we have taken in trade, which we offer at $20.00 each. They are in good order, and a bargain at this price to any one desiring this kind of outfit.

SPRAY-PUMPS.

The season for spraying is already here. Those not already provided with a suitable outfit will do well to look over the inside cover pages of this issue and compare prices with any offered elsewhere. We believe we can save you money on every item in our line.

SECOND-HAND BICYCLES CHEAP.

We have taken a couple of wheels in trade, which we offer cheap. One Ladies' Union, '94 pattern, ridden barely 100 miles all told, and nearly new. Dunlop tires; weight 44 lbs., and costing originally $150. We offer this for $30 net cash.

One Duke, '95 pattern, Morgan & Wright tires, in A No. 1 condition, 26 lbs., which we offer for $30 net cash. We will take honey or wax at market quotations for $5.00 in addition to above prices. These are bargains; and if you want them, speak quick. First come first served.

SECOND-HAND FOUNDATION-MILLS.

Since our last issue we have taken in a second-hand 10-inch mill, No. 1905, round cell, for medium foundation. It is practically new, and we offer it

for $18.00. We still have the 10-inch Pelham machine offered in last issue at $8.00; also the 6-inch machines, as well as the old-stock new machines offered a month ago.

HONEY.

We are still short of comb honey, but have a plentiful supply of choice extracted, with a light demand. We offer California white sage, Nevada alfalfa, Michigan willow-herb, or Ohio clover and basswood, in 60-lb. cans, 2 in a case, in lots of 2 cases or more, at 7c per lb.; 5-case lots, 6½c; one or two can lots at 7½c; alfalfa, in one-gallon cans, 6 in a case, at $5.40 per case; 5-case lots at $5.00.

BEESWAX WANTED.

We are still in want of beeswax, and expect to be so as long as we are in business. We are paying now 25c cash, 28c in trade, for average wax delivered here. Be sure to put your name on the package, and advise us, by mail, with shipping-receipt and number of pounds shipped. Every few days we get a shipment which it is very hard for us to identify, because the shipper was too careless to take these simple precautions.

MAPLE SUGAR AND SYRUP.

We shall be pleased to hear from those interested in maple sugar or syrup. We have shipped two tons of sugar to New York, and are preparing for shipment another 3-ton lot. Our prices for choice first grade are 9c; good or second grade, 8c; fair or third grade, 8c; ½c less in 50-lb. lots; 1c less in 300-lb. lots. Extra choice syrup, first run, 85c per gallon; 10-gal. lots, 80c per gal.; 20 gallons or more, 75c per gallon. Choice, not first run, 5c per gallon less; good quality, 10c less.

CREAM SECTIONS.

During the past month we have been making a good many 2-inch sections for England. The cream grade accumulated from these we have reduced in width to 1⅞, in order to supply the demand for cream sections of this width. A good many of them, however, are open on all four sides. Where we run short of the 1⅞ cream, regular open top and bottom, we will send the four openings unless requested not to do so in order. They can be used in almost every case where the regular section is used, and we believe they will answer every purpose. We have a good supply of cream sections in the following widths:

1⅝, 1⅞, 2 and 4 openings, 7 to foot, and 1⅛; have also lot of white, 1⅞ in. wide, all of which we offer at $2.00 per 1000; 3000 at $1.90; 5000 at $1.75; 10,000 or over, at $1.60.

CARLOAD SHIPMENTS.

We have for some time been shipping two to three carload shipments every week, in addition to the multitude of smaller shipments. Since our last report we have shipped a car to W. K. Ball, Reno, Nev.; a second car to our St. Paul Branch; a car to our Northeastern branch at Mechanics Falls, Me.; a car containing 34 shipments to Salt Lake City, Utah, with a good supply of goods which will be on sale there by John H. Back, care Z. C. M. I.; a carload of half a million sections, and a few other goods, to Fresno, Cal.; a carload to Buell Lamberson, Portland, Ore.; a third car to H. F. Hagen, Rocky Ford, Colo.; a second car to Jos. Nysewander, Des Moines, Iowa, and a car of sections, frames, etc., for London, Eng., besides two cars of cracker-boxes. We are preparing a car for Syracuse, N. Y.

LOWER PRICES ON SECTIONS AND FOUNDATION.

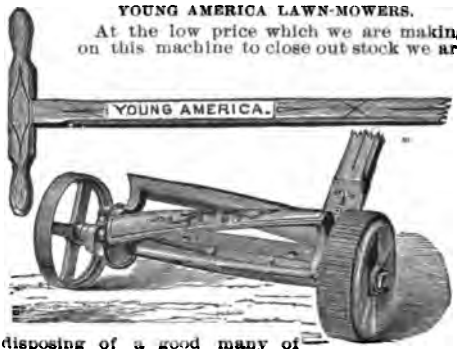
We call attention to the announcement on another page, with the above heading. Other manufacturers, in their efforts to draw trade their way, have found it necessary to reduce prices to a very low point. With our present facilities and stock of lumber we can afford to work on a smaller margin, and so reduce prices another 25c per 1000 on our No. 1 white extra polished sections, beginning May 1. A month ago we had over two million sections in stock; we now have scarcely a million, and we made over a million during the month of April. We sent one car containing half a million to California, and a good many more cars with smaller amounts to other points. We are loading the third carload of sections for export this season. Our output for 1895 was 25 per cent more than for any previous year, and we believe that this year it will be still greater. The growing popularity of our sections is due to their unsurpassed quality and workmanship.

CUYAHOGA LAWN-MOWER.

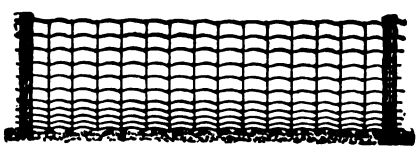
We are offering this mower for the first time this season. We bought a few last season to give them a trial, and found them so good a machine for the money that we decided to list them this year in place of the Globe, which we have carried for the past five or six years. They are light, with open reel and high wheel—a strong and durable ratchet, very convenient setting-device for raising and lowering the roller for cutting long or close. Prices are: 12-inch, $2.50; 14-inch, $2.75; 16-inch, $3.00; 18-inch, $3 25. We still have a few of the Globe mowers left in 10 and 12 inch size, which we offer at $2.25 for 10-inch and $2.50 for 12-inch.

YOUNG AMERICA LAWN-MOWERS.

At the low price which we are making on this machine to close out stock we are



disposing of a good many of them. We have a good number left yet, which we offer, while they last, at $1.25 for 10-inch; $1.50 for 12 inch. This is less than half what they cost us; but we are determined to close them out. This is a bargain which you do not often find. No one who wants a lawn-mower need be without one when it can be had at such a price.



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Warranted, 60c; " 7.00
Tested, 75c; " 8.00
Select tested, $1.50

Imported Italian mothers only are used, and for industry, gentleness, and beauty, their bees are unsurpassed. We have in our yard bushels of drones from imported mothers and their daughters, and a mismated queen is rare. No defective queens sent out. Remember that we are in the far South, and can send queens by return mail. Safe delivery. Money-order office, Decatur.

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FOR SALE.—Five 40-gallon barrels choice extracted basswood honey, 6c f. o. b. here.
C. H. STORDOCK, Durand, Ill.

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Red-clover Italians.

My Italians gathered a big crop of honey from red clover last year. If you want large beautiful bees for business, try them. One untested queen, 65c, 2 for $1.25; 1 warranted 80c, 2 for $1 50: 1 tested, $1.25; 1 select, $2.00. Queens furnished in season, and satisfaction guaranteed.

C. M. HICKS,
HICKSVILLE, WASH. CO., MD.

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VOL. XXIV. MAY 15. 1896. NO. 10.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA · OHIO ·

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

Vol. XXIV. MAY 15, 1896. No. 10.

STRAY STRAWS FROM DR. C. C. MILLER.

SAY, ELWOOD, some of these German fellows will be after you for crediting to Huber instead of Dzierzon the discovery of parthenogenesis.

"THE OLDEST INHABITANT" has no story to tell of a season years ago that matched this spring for forwardness. [That's about the case here.—ED.]

THAT NEW DESIGN for cover talked about on p. 350 would suit me all right if plain type were used without any pictures. [But the masses like the artistic fancy designs better.—ED.]

FIVE-BANDERS have judgment passed on them on p. 359, but that doesn't say what other five-banders are. Red cows are not all alike. [That's true; but our columns have given both sides.—Ed.]

"MOST COLONIES," says John Handel, p. 329, "if managed rightly, will build down to the bottom of sections." But what is the management? and is it less trouble than putting in bottom starters?

MY SYMPATHIES go out to Bro. Draper, p. 365. I was heavier than you, Bro. Draper, and it's a big comfort to come down some 20 pounds. The beef diet will fit you out; but if your wife won't stand that, cut your meals in two and stop drinking at meal time.

PICK THE TWO FIRST LINES off page 330 and put them at the top of second column, page 329, and then you won't think Elwood was crazy or the printer tight. [Thanks for the correction. We are glad to know that at least one of our readers could unravel the mystery. We don't believe it will happen again.—ED.]

"LAYING WORKER-CELLS," p. 356, beat me entirely. What are they, anyway? Didn't you mean mean "plurality of eggs laid by laying workers in worker-cells?" [I didn't use that expression, but let it go, as I supposed Mr. Hassett referred to something I hadn't seen. It shouldn't have been "laying worker-cells."-ED.

PAINTING HIVES with unpainted supers seems to make lots of trouble, according to Skylark, p. 328. Then why paint hives? I don't paint mine, and my supers stay straight and true year after year. Possibly because they're not overloaded with honey like Skylark's.

"PHACELIA grows spontaneously in Southern California, and seems to be an excellent honey producer," writes R. Wilkin. Wonder if there aren't two kinds. The flower I've seen looks quite a bit like heliotrope, and I should hardly think the plant would do for fodder; but in Europe they speak of it as a forage-plant.

R. MCKNIGHT, p. 340, owns up that he hasn't sold honey in his own town for ten years. Say, you Canuck, don't you know it's against rules to neglect your home market? What reasons have you for acting so? If you can make out a good defense may be I'll confess that I always ship away when I can get more money by so doing.

PROF. BONNIER, in *L'Apiculteur*, gives some interesting results of experiments concerning honey-dew. That from lice continues all day, diminishing at night. That of vegetable origin is produced during the night, being at its maximum at daybreak, and then ceasing, its production being favored by the moisture of cool nights between hot dry days.

B. TAYLOR starts on a new tack by wanting a space between comb and bottom-bar for queen-cells and winter clustering. May be all right for queen-cells; but why not leave a two-inch space under bottom-bars for winter clustering? My bees seem to cluster all right that way. [I'd rather have the comb run clear down to the bottom-bar every time; but our bees don't respect my notion.—ED.]

THAT TRAMP SERMON, p. 360, is just right all through. It's kindness to feed tramps, but it's greater kindness to make them work. When brought down to the final analysis, tramping is simply stealing. Straighten your Medina laws, Bro. Root. [Better say our national laws. It ought to be as unhealthy for a professional won't-work tramp to prey upon communities as for counterfeiters.—ED.]

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GLAD TO LEARN B. Taylor's plan, p. 344, of running two stories. I've been trying about the same thing. I gave two stories in August, and reduced to one for winter; gave two again this spring; and when clover blooms, most will be reduced to one story. But what I'm anxious to learn is whether two stories is just as good as the same amount of room in one story.

HAS THE TIDE turned? After a series of poor years ending up with two successive years of utter failure, the tide seems to have started the other way; for in all my experience I think I never knew things more favorable during the same time of year than they have been for the past eight or nine months, ending with the first week in May. Don't tell me to get into a frame of thankfulness. I'm there now.

THAT ARGUMENT of P. H. Elwood, page 330, that feeding thin syrup wears out bees, sets one to thinking. But, say; if it's done early enough I don't believe it wears out bees any more than gathering thin nectar. In both cases, isn't the wearing out more than made up by new bees? It surely wears out bees to gather nectar, but you don't want the gathering stopped on that account. I suspect the bees cook up the syrup in better shape when it's thin.

G. B. REPLOGLE wintered 12 colonies facing east, and 36 facing south; 5 of the 36 died, and the weakest of the 12 came out stronger than the average of the 36. He suspects that facing south is bad, as bees would be enticed on cold sunny days to fly, never to return, while those facing east remained quiet in their hives. Worth thinking about. [Looks reasonable, and yet our hives face north, southeast, and west, and the bees in all seem to winter equally well. —ED.]

IN REPLY to J. E. Hand, p. 355, I don't know enough from experience to advocate either single or double walls for outdoor wintering; but I wintered out one single-walled hive last winter, and hope to try more next winter. But I had a story filled with rags over, a story of combs under, and an entrance 12x2. [Get a good double-walled hive, and you will get better results. Our double-walled Dovetailed chaff, of ⅜ lumber, is preferred by us to the single-walled, in our apiary, it is so convenient.—ED.]

THIS TIME it's yourself, Mr. Editor. You say, p. 357, "Almost the only objection against amalgamation is the idea of making the Union international." I've knocked that man of straw down several times, but some one keeps setting it up again. Don't you know that the Union has always been international? At the last election, three Canadians got a total of 21 votes. Stop talking about the Union *remaining* national. [The organization is named the National Bee-keepers' Union, and is incorporated at Chicago. It is international in its benefits; but to my way of thinking it is national in its character and name.—ED.]

On page 259 W. G. Hewes gives us his ideas as to the causes of the low prices of honey in California. He not only questions Rambler's figures and statements, but actually those of Skylark himself. Mr. Editor, if you permit this to go on unchecked, Skylark's word will soon be no better than that of anybody else. The idea that there is no "water-white" honey! Why, it has been a standard grade of honey here for years, and will continue so for all time to come.

But here is a huge joke—so high that I can hardly climb over it—a Mason jar to test the color of honey! Why, even *water* looks green in a Mason jar. But friend Hewes will not get "water white" from his old brood-combs that he asks us to shake to prove there is no such honey. It must come from combs that never hatched a bee, and that were never polluted with pollen. The whole aim of the article is to show that J. H. Rambler and Skylark have wrecked the California honey market (which, according to another part of the article, is not wrecked at all); one by overestimating the crop, and the other by speaking of pure black-sage honey as "water white." Now, that is just my idea. I knew, and Rambler knows, that we are both great men; but I didn't know that the whole world knew it. O Rambler, Rambler! our fame is safe—they know it up—away up—at Newhall! Now we can put up or pull down prices as we please. Rambler cries out, "Honey is selling at 3 cents;" Skylar kechoes back, "Water-white!" O Skylark, J. H., and Rambler! you are a reckless trio. You can wreck any thing, from a hairpin to a honey-market, and not half try.

AN OPEN LETTER TO DR. MILLER.

Dear Doctor:—As you seem to be, at the present time, a sort of target for "open letters," I want to put in my "jaw" and shoot at you too. But indeed and indeed, dear doctor, I will pull the trigger easy, so I will not hurt you. Do you think you will come out victorious in that tilt you are having with Rambler as to who owns Chicago? It is just as much *our* Chicago as it is yours, and more too. Haven't we built it up with our honey? What! Give up Chicago? Not for millions. Why, I would abandon my breakfast any day, and never eat another bite again—never, never (till dinner-time), rather than give up Chicago.

It is true, as Doolittle tells you (*A. B. J.*, 255), you have helped to build up bee-keeping in

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California through your articles, and by answering questions; and now, O doctor! I write this in grief and tears—just because we produce tons of honey to your hundreds of pounds, you want to kick us out of the bosom of your family—apicultural family I mean—without pity and without remorse.

Dear, dear doctor, have you no tender recollections of our childhood in apiculture, when we sat at your feet—the purity and innocence of childhood shining in our eyes—and learned the lessons of wisdom from your lips? O blessed lessons! O dreams of golden treasures, flowing down from the mountains, actually realized! What good are you, anyhow, when our master will not allow us to sell you for spot cash? Barred out of Chicago! barred out of the northern markets by the very master that taught us to handle the tools and to get the product—always assuring us there was a way to sell it. If you, dear doctor, have not yet got a mortgage on Europe we might send it there.

Yours truly,
SKYLARK.

P. S.—I am very sorry to tell you, doctor, that you will have no competition to fight this year. California will not produce half a crop, and I doubt very much whether it will go above a third. You can now get out your roosters and banners, and go on a triumphal torchlight procession as soon as you please.

That's a splendid idea laid down by Skylark. Every bee-keeper north, south, east, west, join the Exchange. Just think of the sinews of war *that* would give us. It is evident our Exchange will have ample opportunity to grow this season, for the prospects for a large shipment of honey grow beautifully less as the months advance and the rains fail to refresh the flowers.

W. T. Richardson, president of the California Bee-keepers' Exchange, while stepping from a moving train at Santa Paula, on the evening of the 10th of April, was thrown so violently to the ground as to be rendered unconscious for several minutes. His condition has been extremely critical for several days, and at this writing he is not considered wholly out of danger.

I note what Bro. Hewes says about California honey-yields, on page 259. It is a lamentable fact that our estimates can not be more correct. The only way to estimate a yield is to go to the railroad statistics and calculate from shipments. That would be very unreliable for the coming season, for much honey has been held over that would be classed as the crop for 1896. There was but little held over from 1894, and there is no way to even up the hold-over or get at the amount held here for home consumption, except by a rough estimate.

Now, while I am not so sure about honey-yields I am much more so about the number of bee-keepers. While, as Mr. Hewes remarks, Ventura Co. has but 58 bee-keepers, San Bernardino has something over 100; and those large counties of Los Angeles, Riverside, and San Diego, have several hundred. I have a list of over 600, and know I have not all of them. There are over 1000 in Southern California, and I will undertake to prove it by showing the names before the year is out.

One of the most hopeful signs of the times in beedom is the present wide discussion in relation to the marketing of honey. The appliances for producing honey have been improved to the very point of perfection—so near to it that such good authority as the *Review* thinks there will be no more great inventions in that direction. But there is plenty of room in the direction of marketing the product. That field has been neglected too long, and in this feature we expect to see the great improvements within the next few years.

That article in Harper's, about bees, caused a muscular contraction of the muscles of my pedal apparatus. Of course, I would not kick the lady writer of the article; but I do kick when people write to me asking if I am the Martin in question—just as though a young man like myself should use a cane, and gracefully spread that and my hat on the floor, and rhapsodize about bees! Inasmuch as the incident happened in the Sespe country, I am inclined to think that Ninetta meant to portray that bee-man McIntyre.

A. D. D. Wood, a long-geared individual, recently from Lansing, Mich., and now stopping in Los Angeles, has taken a violent fever for rearing queens on Catalina Island. This island is located 25 miles from the California coast; and, being a famous resort, it is the only island visited daily by steamers. Its accessibility to man and inaccessibility to bees make a desirable place to rear queens and have them fertilized by selected drones. Mr. Wood has secured the sole right to the island for this purpose. We shall watch his progress with interest.

DR. MILLER'S STRAWS LIKE THE STRAW FED TO THE IRISHMAN'S HORSE.

Dr. Miller's "Straws" remind me of those fed to the Irishman's horse. The horse was fat and sleek, and he declared he fed him nothing but straw, and emphasized the statement by saying, "It wasn't half thrashed either." Grain in it.

DUDLEY W. ADAMS.

Tangerine, Fla.

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EITHER from more stings or a nervous strain, Olin seemed to be suffering more than I, and complained of a choking sensation, and commenced to hiccough, and kept it up so persistently that I became alarmed. I had read of deaths caused by bee-stings, and didn't know but this was a premonitory sign. The bees had withdrawn their forces, and I was able to get our traps to the boat. We had noticed a cabin across the river, and, after much labor and pain, Olin still hiccoughing, I pushed the boat up to the little wharf. A rough looking old fellow came from the cabin, and, from Olin's hiccoughing and our swelled faces, seemed to take in the situation at once; and before I could get at him with a question he shouted, "Hey, youngsters, yer in a pooty fix, I reckon! ben meddlin' with them no-count bees—ha, ha! yer got the yere-marks, eye-marks, an' nose-marks; never knowed them bees to fail putting on the marks. Now don't try to 'splain matters, but jest git right down the river to Coloosa or you're gonners. Them bees gits their livin' mostly from rattleweed; and everybody that has any thing tu du with them gits rattled, shore. The owner got rattled hisself, and drownded off Lone Tree Point."

I had read somewhere that whisky was a sure cure for bad cases of stings, and now shouted to the old fellow, asking him if he had whisky.

"Whisky?" said he; "why, young feller, you make my mouth water. Whisky? no, sir; if I should leave a drop in the house the old woman'd drink it. I make it a roole never to leave any. It's a mighty unhealthy place for whisky round this yere place, an' various other things; so yer had better pull right away, youngsters, and get down the river;" and, without further parley, I pulled out into the current.

It very luckily, perhaps I should say providentially, happened that one of the little steamers rounded the point above us, as we had gotten well into the current, and we were glad to hail it and get aboard. While getting on deck we were the targets for numerous comments from the occupants; and one of them shouted, "Make way there, lads, for Punch and Judy."

I suppose the comical aspect of our faces gave this fellow the cue for the name.

While Olin was hiccoughing as rapidly as ever I asked again for whisky. They might have had the liquid on board, but the steward came to our rescue and conducted us to the cabin

"Now," said he, "lads, we prognosticate your case; and what you want is an application of onions;" and from that moment it was onions externally and onions internally; onions raw, onions boiled, onion poultices, onion syrup. It was "Punch, will you have this?" or, "Judy, will you have that?" There were over twenty young men on board, native sons, all on a pleasure-excursion, and they were so leisurely in their traveling that it was three days before we arrived in Sacramento. Suffice it to say, the native sons treated us royally; and when we landed, Olin hiccoughed only occasionally, and, thanks to the steward and the onions, our swelled features were much reduced.

Our respective families were interested to learn all of the incidents of our mishap, and we can now laugh with them over the various incidents. Olin will not soon hear the last of his honey-for-breakfast scheme, and I shall long remember my Sunday and the snags on the Sacramento.

"You surely did have a wonderful experience," said Mr. Hopson. "Your proposed quiet Sunday was rudely and cruelly broken; but there was a cause in your own actions. I will defer my comments until next Sunday; then I will give a general talk upon snags, and how to avoid them; and now good-day to you until I see you again."

At the commencement of Fisk's rehearsal of his river adventure, a young man came in quietly and sat down at one of the reading-tables; and, though his eyes were directed into a magazine, his ears were evidently taking in all that James Fiske was relating; and when the latter was about to take his departure the young man stepped up to him and said, "I beg your pardon for listening to your story. I was much interested, for I am a practical bee-keeper. My name is Fred Anderson. I am recently from the East, and I wish to find parties who make bee-management their business. Are

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there any apiaries near those localities you visited?"

"I should be pleased to aid you, Mr. Anderson," said James; "but I am not posted in bee-matters. The experience I have described is the first I have had with bees, and I hope it is the last—at least, I shall keep a good distance from the little rascals hereafter." Turning to the Secretary he said, "Mr. Hopson, you are well acquainted with men and various features of the river; perhaps you can put this gentleman on the track—or, I should say, the scent—of—of—what d'y' call them?—Ap—Apis mendacious."

"MAKE WAY THERE, LADS, FOR PUNCH AND JUDY!"

"Ha, ha! *mendacious*, sure enough," said Mr. Hopson, "but it's Apis mellifica, or honey-bee."

"Thank you," said James; "but I think my rendering of the name most appropriate. And, Mr. Anderson, beware of the mendacious rattle-weed country. Good-by, and good luck to you;" and James withdrew.

Mr. Hopson, addressing himself to his new acquaintance, said, "While I am not much better posted than my friend Fiske in regard to bees, I think I can put you in the way of finding them if there are any up the river. Mr. Royal Smith, postmaster at Boggs' Landing, knows all about the various industries along the river; and a letter to him will solve the problem for you. You can sit right down here at our writing-table. If you write your letter immediately it will get off in less than an hour."

Fred expressed his thanks to the accommodating secretary, and immediately indicted the following letter:

Sacramento, Cal., May 6, 1889.

Mr. Royal Smith, P. M.,
Boggs' Landing, Colusa Co., Cal.

Dear Sir:—The secretary of the Y. M. C. A. of this city refers me to you for information in relation to bees and bee-ranches in your vicinity. Can you inform me if there are any colonies of bees for sale or to rent? About the number, style of hives, and kind of bees, any information you can give will be thankfully received. Inclosed find stamped addressed envelope. Yours truly,

FRED ANDERSON.

After the lapse of three days Fred was very much on the lookout for an answer to his letter. On the morning of the fourth day the postman put a letter into his hands, the perusal of which caused him some little perplexity. It ran as follows:

Boggs, Cal., May 8, 1889.

Mr. Fred Anderson,
Sacramento, Cal.

Dear Sir:—Your letter of inquiry about bees is at hand. I would say that Alph Ghering, a few miles up the river, is the only bee-owner I know of. He has a right smart lot of them. Making a rough guess, I should say there is over a million. I am not much posted in the terms applied to hives, but I should call Ghering's a congregational hive; and when I was there a few days ago they were having congregational singing and a revival (Alph called it swarming). As to the breed, there's where you have me; for the life of me I can't say whether they are Durham, Ayershire, Duroc, Langshans, or spitz poodles; but this I do know, they have no kinks in their tails, and they are chock full of alacrity, and the whole million or more know how to fire themselves against a fellow's nose with the precision of a well-regulated bullet. They hit where it hurts, every time. I have been there, and know. That is all I know about bees. I have no doubt you can make favorable terms with Alph Ghering; he is a mild-mannered man, and has no women to interfere with the free swing of his judgment.

Having been stung a few times I subscribe myself fraternally Yours,

ROYAL SMITH, P. M.

SUPPLYING THE HOME MARKET.

FURTHER SUGGESTIONS ON HOW TO DRUM UP THE GROCERY TRADE: CONTINUED FROM LAST ISSUE.

By F. A. Snell.

As soon as circumstances will permit, after my visit to the town formerly mentioned I get several more crates ready for market. A neat

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label is always placed on the end of each crate of comb honey, and on each can or pail of extracted honey. This is an excellent advertisement for the apiarist who produces a good article of honey. At different times I have received orders from distant parties who had seen my honey in the stores, and gained my address by seeing my label on my honey-packages. I have my extracted honey put up in 3, 5, and 10 lb. cans, or in pails holding 1½, 3, 6, 9, or 12 lbs., having raised covers. I have found it better to have my comb honey put up in cases of different sizes holding 8, 12, 16, 24, and 32 boxes each, of the 4¼ size.

A day is set to visit town No. 2. The crates of comb honey of the different sizes, and the extracted, are loaded into my buggy, and the start is made. The comb honey is noticed by those whom I meet, and occasionally I am motioned to stop. Inquiry is made as to price of the honey, the amount in a case; or, "What have you in the cans or pails?" I inform him, letting him sample the extracted. In many instances of this kind I have sold such a crate, can, or pail of honey.

I pass on, reach the town, and commence the work of selling. I call on the nearest grocer. I salute him, and he returns the same. If I find him at leisure I introduce myself and business, stating that I am a bee-keeper, and have some honey with me of which I should be glad to have him see a sample. A case and a pail or can is brought in. I place the comb honey where it may be readily seen through the glass, which should be clean and clear. I give him a few seconds to look at it. I then raise the cover, showing him the importance of keeping flies and dust out as the light cover does. I remove a few sections for his inspection; and if others are standing by I try to interest them. I then show him the extracted honey, and request him to sample it. I am asked how it is secured. "Isn't it strained?" I explain that it is taken with a machine, or thrown from the combs by centrifugal force, and is far better than strained honey, and give the reason why it is. I give the grocer my price on the comb, and state that I have smaller cases which are readily taken for family use, naming the number of boxes in each. He decides to take one or two of each size. I give the price of that in the pails or cans. He is surprised at the lower price per pound. I give the reasons why it does not cost so much to produce it. Formerly it cost more than now. I dispose of some of this to him also. Settlement is made, I usually taking a little in trade. I tell him that I shall probably be in town with more honey, say in from four to five weeks, and I should like to supply him with what he may need. I also say to him that, if he needs more before that time, he may drop me a card, stating what is needed. I thank him for his patronage, and pass on.

The next reliable grocer is called on. He has a little honey in chunks on a platter in his showcase. I tell him that I am a bee-keeper, and have some honey with me, and should like to have him see it. I bring in a case of the comb and a can of the extracted. He is pleased with the looks of the comb honey, and inquires the price. I give it. He thinks it almost too high, and shows me the honey in the platter, and tells how cheap he bought it. I state that I do not like to handle my honey in such a mussy shape. It is so it can not be done up, and nearly half drained from the comb; can be carried only in a pail or dish, and I believe he can sell twenty pounds of my honey to one pound in the poor shape. If some of his customers want some honey that may be sold cheaper, my canned honey will please them. I have him sample it, stating that it is all ready to hand over to his customers. The result is, I sell him two or three cases of the comb, and several cans. I tell him I am confident that he will find what I have said to be true; that most people are willing to pay for and take nicely put-up honey at a fair price. I ask for his patronage in the future; settle up, and take my leave. Dinner for myself and horse is secured, after which I return home, having supplied the leading grocers of the town with honey.

Milledgeville, Ill.

THE RAILEY SUPER.

A SUPER FOR HOLDING SECTIONS WITHOUT T TINS, SECTION-HOLDERS, OR SUPERS; ITS CONVENIENCE AS COMPARED WITH THE OTHER DEVICES.

By F. G. Railey.

So many objections have been cited recently by many prominent and practical bee-keepers in several different journals, against section-holders, wide frames, and T tins (loose and permanent), that I have wondered if it has not occurred to these gentlemen that all of these things can be dispensed with and a much simpler, and, in my judgment, more perfect, arrangement, used to hold sections in the super. I use thumb screws with a follower in the side and at end of super. I use the Dovetail super, made originally for section-holders. On one side, 4⅛ in. from the ends, I put in two thumb-screws. I put two more thumb-screws in one end of the super, one 4 in. from the *side* which has the thumb-screws in it, the other just 3 in. from the other side, or about midway between the corner and the cut-out for the hand-hold. Now dress the super down to a depth of $4\frac{9}{16}$. This gives a bee-space (the correct one, I think) of $\frac{5}{16}$ above the sections, where they are just even with the lower edge. Now place your super, without any tins anywhere about it, on a flat hive-top or some other level surface. If your super, like mine, was made for section-holders, cut two lit-

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tle board followers, ⅜x4½x11. They will thus, you see, be just as wide as the sections are high when in place, and a little *shorter* than six sections as they are placed across the super. Drop these followers into the ends of your super, one against the screws, the other at the opposite end, seeing that *their ends* are pushed back close against the inside of super, opposite the side screws. Now put in your sections and drop in the usual follower on the *side*, dressed to just 4¼ inches in width and a bee-space *short* at the end next to the *end super-screws*. Now turn up your side-screws sufficiently to get the sections pressed well against the opposite side, then turn up your end screws until you can turn no more with your fingers, and do the same to the side screws, at the same time pressing the tops of sections all into place evenly. If separators are used (I never use more than two), cut them just the length of your sections when well pressed together, or scant 17 inches.

You now have my ideal of a super. Every section is squared up and held firmly in place from every direction. If reversing is practiced, you have but to turn your super over, using the board hereinafter described, to prevent mashing bees. Loosen the screws, let sections and followers (I prefer the latter all loose) drop down, and you have your bee-space on top once more. For freedom from propolis I have never seen any arrangement like it. My boys always shout when they come to what they call a Railey super in cleaning up the sections for market—no T tins, nothing in the way of a wholesale scraping of both top and bottom of sections before the screws are loosened, thus removing the small amount of propolis found there. Then loosen the screws, and the sections separate in all directions easily, as soon as the super is lifted off.

When I think of having to handle and clean and take care of, and pay for six section-holders or six wide frames, or even five tins, as compared with this arrangement, I have a feeling of joyful relief. Somebody says, "Why, you have two or three board followers to take care of and clean." Well, they are of such shape as to be much more easily cleaned and cared for than the other articles, and cheaper. Then if you will think of their position in the super you will see that there will be but little cleaning to do to them. The bees do not get much at the end one.

Another may object, "You can not take the sections out as they are filled *while on the hive*. If you loosen the screws, of course the sections would drop into the brood-frames or honey-board below." I answer, this is the only objection which has troubled me. My remedy is to have a board constructed like a bee-escape (the latter can be utilized), just the size of the super, with a strip ¼ x ⅜ tacked around the outer edge as a rim; then five more of these ¼ x ⅜ strips tacked across the board just where the rows of sections come when the super is raised and set upon this board. When any sections are sealed, simply raise the super, slip this board under, and even the corners, as when you put an escape under. Then loosen your screws and see how much more nicely any section can be removed than with any other arrangement—no bees hurt, no propolis to necessitate prying and wrenching. Each section stands loose in its place ready to be picked up. Friends, try it.

Glasgow, Ky.

[It was Oliver Foster, I think, who devised, some ten years ago, a super for holding up sections by side and end compression; but of late years we have heard nothing about it. But his method of producing compression was not by thumb-screws, but by a sort of clamps at diagonally opposite corners, the super itself being halved through those corners. It is quite possible that, by the help of thumb-screws, the sections may be so securely held as to stay in place. But I am rather of the opinion that, for very dry climates, like that of California, for instance, or climates of the other extreme, such as, for instance, those of Florida and England, such a super would not answer. In the first-mentioned localities, the sections would be liable to shrink a trifle after being compressed, and drop down. In the others, the dampness would cause them to swell and buckle up. I may be mistaken, but that would be my impression. If Oliver Foster has abandoned his original super, perhaps he can tell us the reasons why.

But there is no denying the fact that such a super could be filled and emptied much more easily than any other form; and, too, we have the further advantage that such sections would be brought much nearer to the brood-nest. When Mr. W. K. Ball was here he expressed a desire for a super that would allow the sections to come up to the brood-frames, within a bee-space. He was then using T tins; but I presume he would like the Railey super better yet, providing there would be no danger from shrinkage, thus allowing the sections to drop down and destroy bee-spaces.—ED.]

FROM THE ORANGE-GROVES OF FLORIDA.

FOUL BROOD; KIND WORDS FOR THE A. I. ROOT COMPANY.

By W. S. Hart.

Mr. Root:—Your card of a recent date, giving notice that you have placed me on your list of complimentary subscribers to your journal for the ensuing year, came duly to hand, and I thank you for this added evidence of your good will. GLEANINGS, long years ago, became indispensable to me; and I believe that, through me, it has become the same to many others. It is always a pleasure to me to speak a good word for the A. I. Root Co. and its wares, for the two reasons that I like the persons composing it; and because, second, whatever they send out is of the highest type of its kind, or else sold for the lowest price of any of its quality.

I have delayed acknowledgment, in the hope that I might send other matter of value with

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the letter. I hoped to give some information of value to my brother bee-keepers in reference to the treatment of foul brood. I had no new remedy in mind, but hoped to add conclusive evidence as to the efficacy of some of the supposed cures now before the world. I regret to say that I have very little of value to offer, up to this date; and the present status of the trouble in my apiary and its surroundings is of a discouraging nature. I have already lost some 20 colonies, and have several more that are quite weak from the various experiences that I have put them through. I have tried lysol and several other chemicals, without success. I have fed all my apiary with medicated feed (using lysol principally) as a preventive, repeatedly; but the disease keeps reappearing. By the McEvoy method I have succeeded in effecting cures; but many colonies so treated would show the disease again before much brood could be raised; and a repetition of the treatment would so weaken them that several would have to be united to give them strength to survive.

I still feel quite confident that I could stamp out the trouble if it were confined to my apiary alone; but a neighbor, a Manxman, one possessed of all the peculiarities of the natives of the Isle of Man, has or had 90 colonies near by that he has not examined for five months, although he owns that there was something wrong with them the last time he did so. Florida has no foul-brood inspector; so, though his apiary is probably a putrid mass of infection, it can not be exterminated either by law or persuasion. The disease alone can do it. Under these conditions I see but little hope of ridding this section of the dread disease; and all efforts to test remedies must almost necessarily prove useless. Among my many reasons for regretting this is the fact that yourselves and others have sent me chemicals to test on the disease, hoping for valuable results, and these hopes must be disappointed.

AN INTERESTING CASE OF A CURE OF RHEUMATISM, BY BEE-STINGS.

I am happy to report, however, that I seem to have been successful, as a self-appointed physician, in one direction that will interest many bee-keepers. I inclose a short statement of the case, from the pen of the patient, and would add, to what is therein stated, the following facts: Mr. Hendrickseu is a well-educated young Dane, a man of culture and bright intellect. His sufferings from rheumatism for the first four weeks here excited the sympathy of all who met him. Being well versed in chemistry, he was fully posted as to the medicines that had been prescribed, none of which had given him much relief; and being of an active, joyous disposition, he was not as prudent as he might have been, and his trouble was becoming worse all the time. It was with little faith that I suggested bee-stings as a remedy; and, though he was interested at once, it was not until I loaned him printed matter referring to it that he became fully convinced that there might be real virtue in it. After suffering severely one morning he applied the stings to his aching leg at about 10 A.M. The benefit was apparent at once, and that night he got his first good sleep in a long time. On the morning of the third or fourth day some of the boarders at the Bay View were astonished to see him out on the grounds at an early hour in the morning, alternately leaping and kicking out in great shape. Not knowing what in the world was the cause of such gymnastics, one cried out to him to know what was the matter, and found that he was simply trying his legs to see if he could find any rheumatism left in them. It is now some weeks since then, and he is still apparently cured, though it has not been his fault that he is so, as he has been almost constantly on the move, either upon the river or upon the shore, and often with wet feet and other conditions existing that would naturally bring the trouble back. He starts for the North this morning, carrying with him an active interest in "the little busy bee," and the hearty congratulations of the many friends he has made here, all of whom know of and are astonished at the wonderful cure. It may seem unusual that there is no "one dollar a bottle" to come in here somewhere, or some expensive recipe to be filled; but it is an honest, sober fact, that Florida climate is not necessarily expensive; and even I, the writer, will furnish the bee-stings, free of cost, to all the patients that you will send to the Bay View House next winter, though, having no ax of any kind to grind, there is no $1000 reward offered for a case I can not cure.

W. S. HART.

Hawks Park, Fla., Apr. 17, 1896.

[The following is the statement referred to.—ED.]

BEE-STINGS A CURE FOR RHEUMATISM.

In the summer of 1895 I felt, occasionally, pain in one leg; but, not being unable to attend to business, I took no further notice of the case until the middle of January, 1896, when the pain suddenly became so intense that I was obliged to consult a physician. He pronounced the case to be sciatica, and prescribed a treatment of massage, which did at the time possibly more harm than good. Another physician tried various remedies, but failed, and finally advised me to change climate. I had then been confined to my bed two weeks, and was at the time unable to move about without a cane, and suffered intense pain.

The first of February I went to Florida, and came by mere chance to Hawks Park, where I made the acquaintance of the noted orange-grower and apiarist, W. S. Hart. He furnished me with reading-matter from his well-filled library, and, among the interesting books, were eight or ten volumes of GLEANINGS, some of them dark with age, where I found several articles on bee-stings and rheumatism, and concluded to try the experiment. I had then

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been in Florida more than a month without deriving any benefit from either climate or medicine. The first day I had six bees applied to the leg along the sciatic nerve, and felt instant relief. The second day I applied seven bees; and two days after, I was able to walk straight without a cane, and have felt no pains since.

In applying the bees, take them by the thorax and put them on the desired spot. Leave the sting about five minutes, or until all the poison is extracted.

Chicago, Apr. 20. H. C. HENDRICKSEN.

[Your experience is almost identically ours on the matter of curing foul brood. The McEvoy method is good so far as it goes; but Mr. McEvoy does not think the disinfecting of the hives is necessary; but we found that colonies shaken on to frames of foundation back into the old hives, without disinfection, were quite likely to have the disease again; but when they were treated in new hives, or hives that had been boiled, the cure was permanent.

With regard to rheumatism, in many cases bee-stings seem to work quite a remarkable cure, while in others no effect is experienced; but we should not forget that there are different kinds of rheumatism. Perhaps some of the medical men in our ranks can enlighten us—particularly as to what kinds of the disease are more susceptible to the effects of the bee-sting poison.—ED.]

THE NEW WEED-PROCESS FOUNDATION.

FURTHER TESTS CONFIRM PREVIOUS TESTS; FIVE TIMES STRONGER THAN THE OLD DIPPED FOUNDATION.

By O. O. Poppleton.

Our honey season is a month later than usual, so my last experiments with foundation are also late, but are finished. The later ones all confirm the first ones. I gave all the light and medium brood foundation I had left to a neighbor, Mr. B. Parks, with proper instructions, and he reports to me that the average stretch or sag of the old-method samples aggregated just five times as much as did the new-method ones, being almost exactly the same as in my tests with the light weight previously reported.

My own later tests were made with the heavy makes, which were alternated in hives into which heavy prime swarms were run. As the weather was quite warm at the time, and a fair flow of honey, this made a severe test of the foundation. All the sheets made by the old method were stretched some—not very seriously so, but yet so as to be plainly noticed at a glance, while it was absolutely impossible to see a particle of stretch in a single one of the new-method ones. The difference was so plain that a novice could have picked out each kind by itself at a single glance.

I could see by the age of the brood in each that the queen had first deposited eggs in one of the new foundations, then skipped one of the old ones and used another new one before using the old one between them. This looks as if the new was worked out somewhat the quicker; but, of course, one instance of this kind proves nothing. Aside from this I noticed nothing to show any preference of the bees for either. So far as such experiments can prove any thing they plainly show a decided superiority of foundation made by the new method compared with that made by the old, and that your claims of such superiority were quite well founded.

Our tests of the thin foundation for surplus have not shown any marked difference between the two kinds. Even were we fitted with the right appliances for such a test, I doubt the practical value of such tests between these two makes as were made by Mr. Taylor between the different kinds of thin foundation. After using all the different kinds of foundation made, from the first made by the inventor, some 25 years ago, including milled, pressed, and molded, I had reached the same conclusion that Mr. Taylor did from his experiments; viz., that foundation made by the Given press would be worked out by the bees a trifle quicker than any made on mills. Molded foundation was fully equal to Given—better, if any thing.

I differ with many bee-keepers in thinking that the points brought out by Mr. Taylor's experiments are, while interesting, of very little practical importance. The bees, having their choice of different kinds of foundation in one section-case, of course commenced first on the kind they liked best; and when all were drawn out, these were a trifle thicker—that is, longer cells—and held the most honey. If all the sections had had foundation of one kind, all would have been commenced more alike—been more uniform in thickness, and been more even in weight; and, in most cases, all would be finished in nearly the same time without reference to what kind of foundation was used. Whenever bees are very reluctant to commence work in surplus-cases the quality of foundation used may be an important factor; but I doubt whether it amounts to much in use in the brood-nest. Whenever conditions are right for bees to draw out foundation in brood-frames (and foundation is seldom given to them for that purpose at any other time) they will draw out foundation of any kind with almost equal promptness. I have used all kinds of foundation—that with high side walls, with no walls at all; that with round cells, with natural-shaped cells—pressed, milled, molded—that newly made, that fastened in frames and hung in the light for months, and, so far as readiness of being worked out is concerned, I have ceased to think there is much practical difference. What has been a serious trouble with all kinds of foundation is the tendency to sag or stretch, causing elongated cells, and bulged, ill-shaped, and useless combs; and any thing that will tend to obviate this trouble is of much practical value.

I use deep frames, 12 x 12 in., and, of course, am troubled more with stretched foundation

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than if I used shallower frames. Because of the great difficulty of getting foundation reasonably free from this fault I have, for a dozen years back, made and used mostly my own foundation on plaster molds, by Oliver Foster's methods. My experiments have satisfied me so fully that the new foundation is all right that I have decided to make no more molded. I confess that, at first, I took no stock in your claim for the superiority of the new foundation; but rigid tests have shown otherwise.

Stuart, Fla.

[Previous to this year some very satisfactory tests were made, the result of which showed that the new-process foundation was in every way superior to the old made from dipped sheets. But we desired to have it put to a more severe test yet; and, as we have previously advised our readers, Mr. Poppleton, a very careful and intelligent bee-keeper, was employed to make some further tests; for if there is any place in the United States where foundation is liable to stretch, it is in Florida with its hot sun. As previously announced, the first preliminary tests by Mr. Poppleton showed that the new Weed process was five times stronger than the old dipped foundation. The foregoing is the result of more elaborate experiments during hotter weather, and fully confirms the previous tests.

Some of our friends could not understand why the new foundation should be tougher, and yet more easily worked out by the bees. There is something parodoxical, it is true, in the terms, but actual tests show that it doesn't stretch like the old, and is more quickly worked by the bees.

Mr. Poppleton is to continue experimenting for us, and later on we shall have further reports. In the mean time do not forget that Mr. Poppleten says he at first took no stock in our claims as to the superiority of the new foundation; but his own experiments have convinced him that we were right. And observe, also, that the new foundation can be used in lieu of the old molded wax with much heavier sheets.

And, again, it seems evident that much lighter grades of foundation can be used in the hive. The consequence is, for the same money more sheets of foundation can be purchased, of this new process; and these lighter sheets will do the work of the old heavier sheets of dipped wax. We are not content, however, to let the matter stand where it is. We are using our "best brains" to improve what may now seem perfection itself.—ED.]

LONG-TONGUED BEES.

THE LARGE FOUNDATION WITH CELLS 4½ TO THE INCH.

By Dr. C. C. Miller.

Just how many years ago it is I don't know, but I think it was during the first few years that foundation was made. A. I. Root conceived the idea of making foundation with cells of intermediate size between worker and drone size. I never knew what his object was, but I know he got some pretty hard raps for it, for the bees didn't seem to know whether it was meant for drones or workers, and used it sometimes for one and sometimes for the other. At any rate, it was moved and unanimously carried that he mustn't make foundation with cells of any different size from the size adopted already by the bees. Having voted in the affirmative, I now move a reconsideration.

For some time the French have been experimenting in the direction of having bees with longer tongues, and for a good while I was under the impression that it was merely by trying to breed constantly from the bees with longest tongues that the object was to be gained—a mistake that may be excused on my part, because the same mistake was made among French bee-keepers themselves. Instead of that the plan is to try to raise bees with longer tongues, not by merely stretching the tongues, but by increasing the size of the bee throughout, trusting that, as the size of the bee increases, the size of the tongue will increase in proportion.

The increase of size is sought to be gained by using foundation with cells larger than the normal size, and the largest bees are selected to breed from, the glossometer being used to measure the tongues so as to make the selection. As I have already mentioned, M. Legros has made a notable advance in the matter, the glossometer of his invention being one of the best; but he disclaims the idea that his gain in the size of bees, and consequently in the length of tongues, is by means of the glossometer alone. That's merely used as a test in making selections, the gain in size being made by using larger-sized cells.

If A. I. Root was ahead of the times, and was seeking to increase the size of bees by means of larger cells, he made the mistake of making too violent a break in the matter. The better plan seems to be to increase the cells gradually. At any rate, I see in *Le Progres Apicole* for January that M. Mees is to have foundation-machines to turn out foundation with cells of three different sizes, 26 5, 25.8, and 24.2 cells to the inch. It will be remembered, that the normal size is about 28 to the inch.

One would hardly think, however, that it was necessary to go so gradually in the matter. On the surface it would seem that all that's necessary is to use the largest size that will satisfy the bees, and not be used too largely for rearing drones. Although they may occasionally rear workers in drone-cells, they don't appear to like too much drone comb. As an experiment I once gave a colony pretty much all drone comb. They showed their disapproval by swarming out. I think the compromise foundation made by A. I. Root was somewhere in the neighborhood of 23 to the inch. Possibly 24 to the inch might satisfy the bees to commence on. However, those Frenchmen probably know a good deal better what they're about than I do.

It may be remembered that Dr. J. P. Mur-

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dock succeeded in getting bees of unusual size. If the attempt is to be made to breed for size it would be a great gain to have his strain of bees to commence with. He sent me some of the bees, and also samples of comb about which there could be no question. Without taking time to hunt up the report I made about it in GLEANINGS, I remember that the cells were about medium between drone and worker size, some of them larger, and a few I think just about four to the inch. This comb was, of course, built by the bees without any foundation. I believe he made no mention of having made any gain through larger-sized cells, but mainly through selection of larger drones and some special feeding of the drones while in the larval state. At any rate he made an advance in size that was decisive, and I think it was ahead of any thing yet accomplished in France.

It is well known that bees of reduced size can be raised by having the size of cells reduced. That the opposite rule would work doesn't necessarily follow. But the possibility is worth trying for.

The question may be asked, What's the good of bigger bees? I don't know of any except just one thing—they could work on red clover. But it is possible there are other flowers besides red clover that longer tongues could reach.

IS REDUCTION OF FEES "CHEAP JOHN" BUSINESS?

On page 52, Rev. W. F. Clarke maintains his position that he doesn't want to belong to an organization that doesn't have a good-sized annual fee; thinks reducing the fee would diminish rather than increase the membership; doesn't believe in the "cheap John" style of doing business. I think $1.00 has always been the annual fee for membership in the North American. Do you believe, Mr. Clarke, that, if the fee were increased to $1.50 or $2.00, there would be a gain of a single member? According to your reasoning there ought to be; for if the value of membership were measured exactly by the cost, then a $2.00 membership would be better than one costing only half as much.

I don't believe in the "cheap John" style of doing business any more than you do. But that means getting things for less than the regular price with still less than the regular value. But I do believe in getting full value for less money; and I count as a public benefactor the man who can produce for 25 cents what has previously cost a dollar. And I think people have too good sense to think the value less because the price has been reduced. Take as an illustration the matter of newspapers. The Chicago *Record* started as a one-cent paper. There were other papers in Chicago that sold for two or three times as much. Did people prefer the higher-priced papers? You, perhaps, would have said, "There's not much chance for any great worth there. The miserable pittance of one cent! I'll buy the paper with bigger price." But the public didn't talk that way. It said by actions if not always in words, "There's a 12-page paper for a cent. It has the freshest and the fullest news to be had, and, withal, the most reliable. What a blessing that they are smart enough to afford it for one cent!" And as a result, every one of the great Chicago dailies had to come down in price to one cent. Neither do they give cheap service. In no place in the world is more enterprise and brains put into a newspaper. As a further result, the leading dailies of St. Louis made a sudden drop in price from 5 cents to 1 cent. I'm not at all ashamed to say that I read daily a one-cent paper.

It costs more to belong to a bee-keepers' society on this side the ocean than in Europe, but they greatly overshadow us in membership. We've tried the dollar, and we never got the membership. Let's try the quarter-dollar. It may not be out of place to say that the Illinois State Society has practically reduced its annual fee to 25 cents or less, and it never had so large a membership at the dollar price as now.

Marengo, Ill., Feb. 13.

[In times past we have made several foundation-mills for our friends in Germany, having 4½ cells to the inch. Just what they wanted them for we did not know; but it is possible that they desired to get larger bees; but more probably it was because they desired to get a kind of foundation in which the bees would not breed, it being too large for workers and too small for drones. I believe some one has said before (perhaps it was yourself) that a foundation between a drone and worker would be used exclusively for store comb.

We are at present making mills 4½ cells to the inch; and should our friends desire foundation of this kind they can have it at the same price.

LARGER BEES.

Yes, indeed; do we really want them? On pages 315 and 318, Volume II. of Cheshire's "Bees and Bee-keeping," we find:

The last point (size) is one upon which great misapprehension abounds. The idea that it is desirable to increase the dimensions of our bees is all but universal, and, since I have ventured, more than once, to stand alone in condemning it, I must give my reasons for so doing. *Apis dorsata* has been hunted up, although it is known to be a useless savage, simply because it is big, and that by the very persons who claim that the smaller hive bees are the best, in that they give their vote generally to the yellow varieties. Fortunately, it is in the very nature of things impracticable to "hybridize" our hive bees with *dorsata*, over which we may inscribe, "*Requiescat in pace.*"

But it is still necessary to point out that, the smaller the creature, the greater, relatively, are its powers, both for a mechanical and a physiological reason. First, other things being equal, as an animal is enlarged, its weight increases as the cube, and its strength as the square only, of the ratio of the lineal increase.

The botanical reason for desiring no alteration was expounded in Vol. I. Flowers and bees have been constantly interacting. The build of every floret is adapted to that of its fertilizer, and, could we suddenly increase the dimensions of our hive bees, we should throw them out of harmony with the floral world around them, decrease their utility,

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by reducing the number of plants they could fertilize, and diminish equally their value as honey-gatherers. Mechanics, physiology, economics, and botany alike, show any craving after mere size to be an ill-considered and unscientific fancy, for which it would be difficult to find even an excuse.

It would seem from this, that, while we might be able to secure larger bees, there would be no practical advantage in them; and I have been wondering whether it would be worth while to the government to import the *Apis dorsata*—a very much larger bee than we have in this country, simply for the purpose of fertilization of blossoms. Would not the size of these bees be out of harmony with the general flora of this country? I believe that no one holds that they would be of any advantage to us practically from a honey point of view. And while I am about it I must say I am not in favor of going to the expense of importing these bees for this reason, and in view of what various correspondents have said.—ED.]

A CRITICISM ON GLEANINGS,

ON THE HOME OF THE HONEY-BEES. ON THE A B C OF BEE CULTURE. AND ON THE ROOT OF ALL.

By J. W. Porter.

The photo-engravings that often illustrate GLEANINGS are good. They will compare favorably in respect to that kind of illustrations with the best periodicals, and are very much in advance of many other features of GLEANINGS. This difference becomes more pronounced when such photo-engravings appear alongside of the rough sketches that attempt to illustrate the notes of Rambler. For further proof of this I will refer to pages 85, 95, and 96 for Feb., 1894. But none of those are quite as hideous as the one on page 753, for Oct., 1894. That picture is more objectionable on account of its being both poor in art and coarse in sentiment. He who attempts to caricature must be a good artist, because it takes a better artist to do that kind of work *secundem artem* than it does to produce real living pictures from nature. Every comic picture must be true to nature, though distorted to homeliness. And then, too, all comic literature, though often dealing with the most ridiculous subjects, is still to be governed by the common rules of decency and propriety. The illustration last mentioned is the first instance, within my observation, that so far violated the rules of common decency as to picture either man or beast in obeying a call of nature (I refer to a case of seasickness).

GLEANINGS is, in some respects, a very peculiar journal. It more closely ingratiates itself into the family circle than almost any other semi-secular paper published. It somehow or other has a fashion of making every subscriber feel that he is a stockholder in the concern, all of which makes it difficult to raise it to the standard of first-class literature; for, how far can an editor allow correspondents, under the influence of friendship, to violate good taste in attempting to say funny things in regard to matters not understood by a majority of the readers, and which, after all, are not so very funny when seen in cold print? Or how far shall a correspondent be allowed to introduce names of friends and relatives where the names of such persons are not germain to the subject? Improprieties of this kind, when practiced by Mr. A. I. Root in his special department, may be admissible, though it is true he says some things that might better be said by his biographer.

But I will return to correspondents. It is not to be supposed that all of the ten or fifteen thousand readers of GLEANINGS are acquainted with Hannah, May, Jose, or Flo; and when the reader is called upon to digress from the subject in hand to take notice of people to whom he has had only a one-sided introduction, he begins to feel that, after all, GLEANINGS is being used as a vehicle in the exchange of bonbons and taffy between a special few. A letter is yet the most inexpensive and decent way of apprising our friends of domestic joys or sorrows. It would not violate good breeding to notify a personal friend by letter that there's a new baby at home.

GLEANINGS is in her twenty-fourth year, and is now in the rich bloom of maturing maidenhood, still bearing clear resemblance to her honest and rugged parent. She survived the crucial period of infantile poverty, and lives an honored goddess whose noble principles are engraved upon every page that bears her signature, and is now entitled to the first place of honor in every home that she visits. If her exalted ambition in infancy made her an expensive burden, she has served to pay the debt, and bless him that begat her, a thousand-fold. Though always with many admirers, she never played the coquette, nor has she ever bartered her honor for selfish gain. If as a teacher of ethics her rule of action is inaccurate she can still say that such teaching is higher than the fetish atmosphere which surrounds her. If the scales in which she has weighed the love or intent of Omnipotence be ever so false, she can still say that they are adjusted by more than an average standard. If to some she seems narrow in her philosophy, she can plead with truth that she is tainted with the corroding poison of an ancestry of idolatrous worshipers of heathen ideas.

I have never read a paragraph in GLEANINGS, coming from the editors, pertaining to matter of a secular nature, that was in the least ambiguous. I am careful of the wording of this, because I shall attempt to show that the same remarks could not in truth be said about the special and ethical side of GLEANINGS. Descriptions of every thing relating to mechanical art, and figures and drafts which are used to illustrate the same, are given to the

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readers with the most careful precision. Errors, however, do sometimes occur; but, even admitting this, my faith in the ability and good intent of the editors of GLEANINGS is such that, if they say the measurement of a thing is found to be $\frac{1}{1000}$ of an inch, I should take it for granted that such statement was made on their own authority, and was therefore correct. If, however, I was certain that such statement was made by Ernest, I should not feel quite as certain of the truth as I would did I know that the measurement was made by his father. I have always supposed that one of the leading characteristics of Mr. A. I. Root was his great precision of character, and that his success as a business man related to a certain degree to that quality. But if Ernest has less of that quality than his father has, I for one think none the less of him for that, for he undoubtedly has other traits of character that stand him in lieu of that one.

Careful that its own advertisements shall not mislead or deceive its readers, GLEANINGS as well maintains a watchful eye over the advertisements of others, ever insisting that they shall do likewise. Having kept the golden rule constantly before its readers, GLEANINGS has set the heroic example of reimbursing the losses sustained by others through any fault that could in the remotest degree be charged to that journal. Again, that unerring precision which seems to pervade the Home of the Honey-bee from cellar to attic applies to the very last act in the making of GLEANINGS. The lines of reading are seldom, very seldom, diagonal to the edges of that journal, and I have never seen a poorly bound copy of it. The margin between the center seam and the reading matter is wide enough to permit the journal to be easily held open to view while reading, without exerting any perceptible effort to keep it in position.

Now permit me to introduce to the reader that grand book—a book which, in my estimation, is the crowning glory of all other works of its author—

THE A B C OF BEE CULTURE.

The point is now reached in this criticism where the reader might well assert his right to catechise me as to my ability to do justice to the work in hand; and I think that I can show satisfactorily that I am competent to judge between the good and the poor, and express an intelligent opinion on all matters that pertain to mechanical art, making no claims, however, to any literary ability.

If I was not cradled in a kit of carpenter tools, I believe I came nearer to that fate than most readers of this article. My father was a carpenter, and carpenter tools were my playthings in youth. By the use of tools I managed to earn my living from my fifteenth to my twenty-fifth year, and have always regretted that I was not permitted to spend my life in mechanical labor.

I do not claim that either in the first or last edition of this work the ultimatum has been reached. But I do claim, as to the purposes whereof this book is published, it is the best exponent of the bee-keeping art that has ever been published. It deals with the whole subject, from inception to finale, with such clear and well-worded description, with such painstaking in every detail, and, withal, a uniqueness of manner, that the most ignorant can understand and the wisest may admire. The business and moral character of the author is revealed in almost every paragraph of the work. He who reads this book for the purpose of being instructed can not fail to become immediately interested, and to find his interest awakened into enthusiasm as, one after another, the doors of Nature's laboratory are opened, revealing to him those secrets that he had previously searched for in vain.

I feel confident that the foregoing remark will be objected to by many of the readers of this article. They would inform me that it was not Mr. Root who made the discoveries of the facts found in this work. To such I would reply that I make no claims as to who discovered them.

It has been well said that bees do not make honey, but that they gather it. The same might be as well said of books.

Man does not make the thoughts expressed in books; he borrows most of them, and discovers a few. Books are mainly the picture of the ideas of the author; his ideas are built upon the thought of the past ages. Man can not invent thought; he can, in fact, invent nothing. Man has discovered a few things, yet only a few things; but only a few compared to what will yet be discovered. It seems to me that the greatest of all man's discoveries was the discovery of himself; but this, only in the perfect day and in the order of eternal evolution. Immeasurable seems the trackless entity of space; yet not more immeasurable or unthinkable is space than the innumerable discoveries that will be made by man in the quintillion of centuries that await his coming.

Who, then, can claim originality in this line of thought? Shall it be Aristotle, Dzierzon, Huber, or Von Siebold? Was not the foundation of their thoughts laid by their predecessors? In the fullness of time, Root compiled them for the benefit of man.

In this work the author has been thorough in his treatment of every branch of the subject, from A to Z. It seems to me that this cyclopedia has done more to educate the world on the subject of bees and bee-keeping than all the combined writings on that subject in Christendom.

The author did not lack in mechanical abili-

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ty, nor does he seem to lack in words to express his ideas in a way that can be understood by the novice. The ideas in this book, and the idea of making the book, must have taken possession of the author at a time when his whole soul was imbued with the subject. There is nothing in the work, of a mushroom quality. The author may be mushroomy, unphilosophical, and ambiguous in some of his writings; but such do not appear in his writings on practical bee-keeping.

There are other things which, correctly speaking, do not belong to the general scope of this work, that weave themselves through the warp and woof of it. I refer now to the moral, the industrial, and the economic teachings. The reader may not at first sight once think that they were placed there for his benefit, for there does not appear to be any direct effort to engage his thought in that particular; but the sentiment is there, and memory will deliver them at some future time. On account of such teaching I have often wished that the A B C of Bee Culture could be found in every family in our land. It seems to me that it would make even the calloused loafer feel out of joint. Its teachings would be especially beneficial to the several classes that live wholly or in part on charity, and survive on account of the ignorance of their fellows.

As before stated, the author has a faculty of wording his descriptions of mechanical things in a way that they can not be misunderstood. In this book, among other things, he tells the reader how to make a bee-hive. He tells him what kind of lumber to select; gives him a rule as to the warping and shrinking of the lumber; the tools that he will need; and all the necessary preparation for hive-making is fully explained. He then gives the exact measurement of the various pieces that shall form the hive, and tells him how to make a pattern for each piece so that all the hives he makes shall be of uniform dimension, and so they shall conform in all respects to the standard measurement of that kind of hive throughout the United States. He is explicit in every description and in every measurement, and to all the material, even to the nails and the paint. Every thing treated of in this book is handled and explained in the same careful manner. When the reader has read the author's description of hive-making he will begin to understand why this great plant that turns out more work (bee-fixtures) than any other of the same kind in the world, is a financial success; and why it is that all of the work sent out from that establishment is of superior workmanship, and why, in the filling of all orders, and in all accounts and in all correspondence, so few errors are made.

I have never met the author; have never been in Medina; have never been so fortunate as to meet any person that has ever been in any wise connected with the people or the work at the "Home of the Honey-bee." This criticism, then, is wholly based upon the literature from that establishment, on my personal dealings with them, and upon considerable of the intuitive. If I am unfair in this criticism, I err through ignorance and not through malice. If, on the other hand, I am too generous in my praise, it came not through any desire to flatter.

[Mr. Porter speaks of the high quality of our half tone engravings, and criticises some of the zinc etchings that have gone with Rambler's articles. Of course, zinc etchings can not be fairly compared with half-tones, because they are entirely different in character. They are what the name signifies—a gradual gradation of shades of white and black; and the result is a beautiful soft picture that must necessarily be an exact copy of the photograph. But a zinc etching is a pen-drawing, usually cheaper, and better adapted to caricature. They are free-hand, and like every thing else of the kind vary in quality. Perhaps one drawing might please one and yet offend the taste of another. I grant that one of the pictures referred to by Mr. Porter is not very appetizing, for it represents one of Rambler's friends so seasick that he just *had* to visit the boat-rail and—well, you remember the rest. This I would hardly call "coarse in sentiment."

While some of Mr. Murray's sketches might be improved, the general character of them is such that our readers have been greatly pleased; and some have even gone so far as to say it was Murray who made Rambler's articles what they were.

Mr. Porter criticises another thing that is perhaps objectionable to some; namely, our referring to familiar persons in and about the Home of the Honey-bees in a familiar way. The fact of the matter is, our readers have come to know us as one big family, and seem to have a proprietary interest in us. It is too impersonal to say that all things are done by The A. I. Root Co. It is much more satisfactory to our readers, I am sure, to know that A. I. R. wrote this, E. R. R. that, instead of hiding under the editorial we; and when we refer to John, our business manager, "W. P.," the proofreader, "Barney," the boss printer, "Merwin," the apiarist, Mike and Jack, the team, we are referring to real persons and real horses. To leave such persons and things buried—completely buried in the A. I. Root Co.—would make a soulless and impersonal thing out of the company. GLEANINGS takes a certain pride in avoiding old-time conventionalities.

Taking it all in all, I wish, in behalf of the A. I. Root Co., to thank Mr. Porter for his very frank and fair criticisms. Where he has criticised there has been some ground for it—no smoke without *some* fire; and you may be sure we shall try to profit by what he has said, even from the last Root baby or Calvert baby, up to the old Root of all.—ED.]

BEE-PARALYSIS CONTAGIOUS.

I see in GLEANINGS that some of the bee-keepers say that bee-paralysis is not contagious. If they had had the experience that we have had they would know better.

New Orleans, La. F. A. CALLAWAY.

[Yes, indeed, bee-paralysis is contagious.—ED.]

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WATERY-APPEARING CAPPING.

Question.—In the fall of 1894 I Italianized a part of my apiary, and during the season of 1895 the colonies which were so Italianized gave me section honey which looked badly on account of the capping to the cells apparently lying flat on the honey, with no air-space under the capping. I had noticed a very little such before, in colonies that had a trace of Italian blood in them; but the Italianized colonies gave two-thirds of all the honey they made, of such a watery appearance that it hurt the sale of my honey much. I do not recollect ever seeing any thing regarding this matter in print, and ask if this capping close to the honey is a characteristic of the Italian bee.

Answer.—The matter of watery-appearing honey was the subject of much discussion at our bee conventions and elsewhere in the early seventies, at about the time the Italian bee had obtained a good foothold in the United States, and very many condemned them on account of their being so economical of wax and space as to give their comb honey the appearance our questioner speaks of. If the questioner had noticed more closely he would not only have discovered that, besides there being no air between the capping and the honey, the capping itself contained less than one-half the thickness in wax that is used by the black bees. While the Italian bee was condemned by many comb-honey men on account of their bad-appearing honey, yet those who used the extractor were loud in their praise of this quality; "for," said they, "as less wax is used, less honey will be consumed for wax secretion, and this will give us the amount of honey which the black bees use in secreting wax for us to turn directly into cash." Hence it came about that the Italian bee was especially recommended for an apiary worked for extracted honey, while the blacks and hybrids were thought by some to be the better bees for comb honey. Not long after this it was noticed that certain strains of the Italian bee, and those coming from mothers many generations off from imported stock, gave combs of a whiteness which nearly if not quite equaled those produced by black bees, and so we set to breeding in this direction till the success along this white capping line was so great that scarcely a thing about the watery appearance of comb honey has appeared for the past eight or ten years in our bee-papers. Here lies one of the objections made by some against the further importation of bees from Italy, that, by such importations, we have a new warfare to begin till we can breed this watery-capping propensity out of them. While I think there is something in this objection, still, so far as I know from personal experience, and some facts gleaned from others, a great advance along the line of white capping of comb has been made in Italy as well as in this country; and our questioner must have gotten hold of some of the very worst bees along this line which are imported from Italy to-day. With me the Cyprian bees were worse along this watery-appearing-comb line than the Italians; while the Syro-Italian bees, sent out by a prominent apiarist, were the worst I ever saw—so much so that their honey was hardly salable at any price, without explanation, as the people looked upon it with suspicion of adulteration, or that it was glucose capped by machinery, according to the "fake" that was then abroad in the land. Had it not been for the many good qualities of the Italian bee, this quality of poor-looking comb honey, that was noticed at the start, would have doomed them just as surely as the stinging propensity did the Cyprians. But the Italian bee is in this country for its many good qualities, and it is here to stay for all time, and in time the objection spoken of by our questioner will be a thing entirely of the past.

CLIPPING QUEENS' WINGS.

Question.—I desire to clip the wings of my queens this year. What is the best way to clip, and when is the best time to do it?

Answer.—First, I will answer as to time: When apple-trees and dandelions are in bloom is the *best* time that I know of to clip the wings of queens, as at that time of the year there are not so many bees in the way, this making it easier to find the queen, and it has also become warm enough so that there is little danger of chilling the brood if the combs are out of the hive some little time. Then the queen is apt to be laying up to her greatest capacity, which makes her more slow of motion, and easy to see. But, having really decided to clip our queens, the time to do this is at any time when we see any queen not clipped which we are sure is a laying one. Thus I am always prepared to clip any queen I may find which is laying, and has whole wings; and, besides this, I go over the apiary during fruit bloom to make sure that *all* are clipped. Now, how shall we clip? Some tell us to clip with scissors, doing so with the queen standing on the comb, cutting off what you happen to catch at the time the scissors are shut. Others say, take the queen by the thorax, and then deliberately cut just so much of the larger wing on the right or left side, just as seems good to them; while others have a clipping-device to run the queen in, so that she will be like a cow in a stanchion, etc., all of which are undoubtedly practical in the hands of those who are accustomed to their use. My way, although I do not claim for it the *best*, is as follows: Have the small blade of your jack-

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knife very sharp, the same being open, and near at hand. Hunt the queen, and, when found, catch her by the wings with the thumb and forefinger of the left hand. Now take the knife in the right hand, and place the sharp blade on the wing, wings, or the amount you wish to cut off; lower both hands to within an inch of the top-bars to the frames, when you are to draw the knife a little till the queen falls to the frames, when, of course, you will raise the knife from the finger or thumb. No danger of cutting yourself if you stop as soon as the queen falls.

From Our Neighbors' Fields.

We note the color craze among beginners as of yore. Dear friends, will you listen to one who has been there? If so, do not place too much stress on color, but look for a honey crop, and use the bees that bring in the largest yields.—*The Southland Queen.*

We have just received a sample lot of The A. I. Root Co.'s new Weed process foundation, and it looks very fine indeed. It does look and seem as though this foundation was perfection, as it is smooth, bright, and uniform. We will give it a test as early as possible, and report.—*The Southland Queen.*

ABOUT FOUNDATION.

Ought not foundation-makers to follow the bees? There is a most beautiful half-tone picture of a frame of comb on page 174 of GLEANINGS of March 1. I notice that the cells are built the unnatural way, and it indicates that foundation has been used, so that the bees were forced to follow the wrong pattern in building comb. I have examined a number of specimens of comb, and noticed that, whenever bees are not hampered by the pattern of the foundation, they build their cells so that two of the sides are horizontal, or parallel with the bottom-bar. T. S. FORD.

Columbia, Miss.

[We think it is the aim of our prominent foundation-makers, as well as others, to follow nature in the manufacture of foundation. It is claimed that the new Weed process foundation will overcome most of the difficulties you mention. The Dadants and Roots are now making the new-process foundation. We have some on hand, and like it better than any other kind, so far as tried. We have learned no right or wrong side to foundation, but it must be fastened to the frames properly or it will break or sag. We have no trouble of late years with any kind of foundation breaking down, regardless of the weather.—*Ed. Southland Queen.*]

IMPORTATION OF APIS DORSATA.

I am thoroughly convinced that a great deal more is being made out of the importation of Apis dorsata than the circumstances warrant. It will cost but little to secure a few of these bees to test their merits, and I do not think that the Government should be asked to go to great expense in order to make any experiments along this line. There are other things of more importance to bee-keepers than the importation of these bees, which should have attention first.

This agitation seems to be mostly in the interest of one man, who seems to want the job of going after Apis dorsata. It would be better, it seems to me, to wait until he has shown a disposition to deal fairly and honestly with his fellow bee-keepers as to some matters he now has in hand before he receives any new commissions.

I for one do not think that, under the circumstances, these bees would prove to be a very valuable addition to the wealth of the bee-keepers of the United States.

EMERSON T. ABBOTT.

—*American Bee Journal.*

TO THOSE WHO DESIRE ANSWERS BY MAIL.

Notwithstanding I have more than once said in print that I can not make answer by mail, I still get a good many requests of that kind, and there seems to be a feeling that a stamp enclosed puts one under obligation to send a written answer. A little thought ought to show the unreasonableness of this. If I answer one by mail there's no good reason why I should not answer another; and as in most cases it would be a little more desirable to have an answer by mail sooner than it could be had in print, very few would want answers in print, and a large part of my time would be taken up writing letters. I'm glad to answer as well as I can in print, for in that case I'm paid for it, and many others have the benefit of the answer; so when you ask for an answer, please always say in what place you want the answer, and don't expect an exception to be made in your case.

I know it often seems as if a man must be very unaccommodating who will not answer a question by mail that requires only a few words; but sometimes an answer of three words may require an hour of looking up the matter; and, even if it didn't, there's no reason why you should be treated any differently from others. C. C. MILLER.

—*American Bee Journal.*

BICYCLES.

The *Times* would be pleased to go on record, here and now, to the effect that the bicycle has come to mankind as a revelation and revolution in personal transportation. It is not here in the nature of a fad that shoots across the horizon of amusement, and declines like a spent meteor, but to stay and to grow better, more popular, and more useful.

A few days since, we saw a father leading along the walk a bright active little son about eight years of age. A bicycle passed by in the street; the little fellow, instinctively impressed with the unfettered, rapid, and easy victory over time and space, watched the speedy flight with joy, his every nerve exhilarated with the manifestation of one of man's greatest turns in the wheel of progress—one the truth of which he could feel—lagged back, only to be yanked up with the cruel exclamation, "Come along; don't be chasin' bicycles all the time." This parent meant well, but he did very badly. In a cold and heartless speech, one that should never be indulged in whether our boys are doing right or wrong, this father rebuked the exercise of the highest ambition that could seize the mind of the child he loved as he loved himself. He didn't see; misconception was all that made him perpetrate the wrong—a wrong that must finally react upon himself.

Those who have an idea that, "the bicycle craze will soon be over" must realize but little of its real relation to mankind, and be entirely forgetful of the fact that, after years of increased adoption, scarcely an abandonment can be found. All will ride who rode before, and all who ride will ride the more.—*Dowagiac Times.*

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KEEPING BEES IN A WARM ROOM THE YEAR ROUND; HOW THEY CAN BE SUCCESSFULLY WINTERED IN A ROOM OF 70°.

For the past six years I have successfully wintered bees in a warm room which usually ranged from 50° to 70°, and for four years have had one or two hives in a window of the Normal Building of this place. They are in observatory hives, with glass sides fully exposed the year round. During the winter they seem quite at home, and very often single bees can be seen crawling about with no signs of uneasiness, and the cluster is in its usual semi-dormant normal state, with no signs of disease. They show no inclination to fly, except in propitious weather—especially if the entrance is shaded if in the sun. Of course, they begin brood-rearing very early, which is an objection unless the bee-keeper wishes to relieve them of some of their hatching brood to build up weaker colonies.

Prior to building his house-apiary, our friend F. A. Salisbury paid me a visit during the winter, and was so well pleased with results above given, that immediately he made preparations to build his house-apiary, which has been described in GLEANINGS, with arrangements for artificial heating if necessary, but he tells me that, with 100 colonies, a proper temperature is maintained.

I was surprised myself to know that, for weeks at a time, they could thus be confined in so high a temperature, and maintain a normal condition; but, as before stated, when they have the freedom to fly at all times they do not care to do so any more than if they were wintering outside in the open air.

I give you this statement because it may be useful to some of your readers, and because I have never seen in bee-literature a similar report. F. H. CYRENIUS.

"FOR PURPOSES OF INCOME."

Editor Gleanings:—Referring to Dr. Miller's Straw of April 15th I stand corrected. I use 19 combs to the hive, and figured the thing out on that basis in the rough draft of my article. In re-writing it, I thought that perhaps 15 combs would be more nearly an average, and changed the money part accordingly, but forgot to change the number of combs from 19 to 15. You people evidently do not read my article carefully. I state that I consider the combs worth 75 cents *for purposes of income.* I can *buy* hives, bees, combs, and all, for one-third of the $14.00. I can also buy a cow for $30.00; but if she paid only 10 per cent on her cost she would find her way to the "shambles" pretty quick. I have heard at least one of our most successful bee-keepers (J. F. McIntyre) estimate his combs, for income purposes, at $1.00 each. I think that is a little high. The question is, Is the use of a comb during a season worth to you the interest you could obtain on 75 cts.? If so, my estimate is correct.

I have bought bees in two-story hives — Gallup frame — as low as $1.50 per hive, and have never paid over $3.75 for any I have ever bought. A few years ago I bought a cow for $40.00. I sold $158 worth of milk and butter from her in 12 months. She also gave me a calf, and we had what milk and butter we used in the family. I set the calf and what we used ourselves against her keep. Now, what was the income value of that cow? Was it her first cost? The income value of property is fixed by what it will produce. The *cost* of the property will vary with circumstances. C. H. CLAYTON.

Lang, Cal., April 24.

[But can you really figure combs at 75 cents, even "for purposes of income," so long as you can buy them for one-third that or less? For instance, a bee-journal costing only $1.00 may save you $100 in one year. A common fifty-cent pocket-knife may be worth to me several times its cost. Indeed, I have seen the time when I would have given dollars for a single crooked pin. But intrinsically neither the knife nor the pin, in items of cost, should be figured at more than the market values. Insurance adjusters don't care a fig how much a machine is worth "for purposes of income," but only for what it can be replaced.—ED.]

IN this issue it will be noticed that we have started a department, "From Our Neighbors' Fields." In times past I have made selections from the various bee-publications; but these were confined mainly to the editorial department, and took much space, and oftentimes required a little introductory matter. Hereafter most of such items will be put into a department by itself, properly credited. It will be made up of choice selections from our apicultural exchanges.

THE following appears in the *Pacific Bee Journal* in their issue for April:

GLEANINGS is just a grand bee paper; but, say, isn't she making a hard fight to take California away from the P. B. J.? There are no less than five articles from California bee-keepers in the last issue, April 1, '96. Bee-keepers, don't help Gleanings to knock down your home bee-paper. You have a hard 'nuff time as it is, with the low price of honey. Keep up your paper, and thus keep up your own business and yourselves.

Why, bless your heart, the copy of the *Pacific Bee Journal* from which the above was taken

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was the first one we have received. In fact, we were not aware that the *Journal* was out. We could hardly, then, have been making a "hard fight" to take away California subscribers. If you will turn to our issue for December 15, last year, you will see that we gave the *Pacific Bee Journal* a good send-off, even before it was born. This, surely, ought to exonerate us from the charge of *intentionally* ignoring the paper.

It presents a really creditable appearance; and its articles are from some of the bright and practical bee-keepers of California.

THE following unsolicited testimonial regarding GLEANINGS as an advertising medium speaks for itself:

Mr. A. I. Root:—During the past year we have used many advertising mediums, and a summary of the results obtained shows GLEANINGS IN BEE CULTURE to be far ahead of the other mediums used, in proportion to the expense. It gives us pleasure to send you this unsolicited testimonial.

THE MARKET GARDEN CO.,
F. W. LEAVITT, Manager.

Minneapolis, Minn., May 7, 1896.

We desire to thank the *Market Gardener* for this very kind favor. If more of our advertisers would take pains to acknowedge the merits of different periodicals in some such way as this it would not only help the advertising medium itself, but advertisers, in the selection of their papers.

IN view of what some of the correspondents of the *American Bee Journal* have said, a sample of which we give in our new department, "From Our Neighbors' Fields," in this issue, and in view of the further fact that *Apis dorsata* would be of but little or no use to us for the purpose of fertilizing the flora of this country, GLEANINGS is opposed to any action on the part of the general government for importing these bees to our country. It would involve considerable expense, and very little if any good would result, even if the expedition were successful. Moreover, if money is to be used by the general government for the benefit of bee-keeping, it can be much more wisely expended in other ways—for instance, the United States Experiment Station, under the wing of the Department of Agriculture; or a national honey and bee show at Washington would be more acceptable to the mass of bee keepers.

C. W. DAYTON, in the *Review*, writing on the subject of glucose in California, intimates that, by the heading I put on an article he sent in, and which was published some time ago in these columns, I entirely "changed the aspect" of said article; and that, by that heading, I made it appear as if he, Mr. Dayton, was "out of sorts at everybody, bee-keepers included." When I first read the *Review* article, I was quite inclined to believe that I had, unintentionally, slightly changed the thought of the article; but upon looking it up I can not see but that the heading clear through is a true index to the whole article. I would say, in explanation, that Mr. Dayton intimated in letters that I had changed the wording of the manuscript itself, and therefore requested that I return one of the pages, which I did. Before doing so, I carefully compared this page with that part of the article which he thought had been changed; but I found that we had printed it verbatim—word for word. If Mr. Dayton said some things that he wishes now he had not said, as seems to be indicated by the fact that he could not believe he had written what the cold print shows, he should not try to saddle the blame on the editor who put the heading on his article. The fact of the matter is, his statements were a little overdrawn, and I said as much in my footnote at the end. I did not then and do not now believe that honey is adulterated in California, with glucose, to the extent that Mr. Dayton would have us believe; but if there is adulteration there, I believe most heartily in ferreting it out and bringing the guilty ones to justice.

THE DANZENBAKER HIVE A SUCCESS.

I am using some of the Danzenbaker hives, and expect to use them entirely, as I don't exactly live in the land of milk and honey that Mr. W. W. Somerford mentions in Mar. 1st issue, page 179. The hive he prefers is a ten-frame, three to four stories high. It may do in Texas, but is no good here, as I have tried the ten-frame Simplicity, and have discarded it.

On page 260, April 1, Mr. J. E. Hand says that his objection to the Danzenbaker hive is the difficulty he had in a hive he used several years ago with end cleats; that his trouble was in getting the first frame. Doubtless he has not used or even seen one of Mr. Danzenbaker's hives, as they have follower and wedge, and present no trouble in removing the first frame. As that seems to be his only objection, when he uses one he will doubtless use them entirely. The bottom and cover alone are quite an advantage over other hives. I have several eight-frame Dovetailed hives, in which I am going to use the Danzenbaker frames and sections lengthwise, if I can't sell them. I am also going to use some of the sections crosswise in the Dovetailed super; but I am of the opinion of Dr. Miller, page 265, Apr. 1, that sections are better running the same way that the frames run in the lower story. S. D. MATTHEWS.

Hamilton. N. C., Apr. 20.

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OUR HOMES.

Not to be ministered unto, but to minister.—MATT. 20:28.

Thou hast been faithful over a few things; I will make thee ruler over many things.—MATT. 25:21.

Perhaps I should apologize for using these old, old texts over again; but the only excuse I shall offer now is that it seems to me there is still a vast unexplored region of not only joy, peace, and happiness, but prosperity, in this line of taking up the duties of a servant—yes, waiting on others instead of waiting for somebody to wait on *you*.

One special department of our business just now has been delegated to me because I begged to have that department. I refer to the collection department, or looking after people who do not pay or who can not do so; and I have succeeded excellently in at least *one* line of this work. I have induced people to write and tell me their circumstances; and when the bookkeepers have declared that these people would not answer a word, not even if we inclosed an addressed postal card to them, I have succeeded in getting replies. In studying the case I often say, "Bring me the last letter you can from this person;" and from this one letter—from even a brief scrap of the person's handwriting—I often gather the circumstances and an idea of the character of the person; or, if you choose, I become a little acquainted with them. Oh what a grand thing it is in this world of ours to become acquainted with our neighbors! I finally get good letters telling all about the home, the wife, and the dear children; and oftentimes, where there have been hard and unpleasant feelings toward The A. I. Root Co., very kind and pleasant relations have been established. Well, in these letters telling about the homes where the readers of GLEANINGS live I have heard of much disappointment. I have heard of failure of crops; I have heard of undertakings and new kinds of business that have turned out badly. Some of these enterprises have brought the good friends deeper into debt instead of getting them out of it. And now I want to tell you of one reason *why* people fail in business—in any kind of business, if you choose, because the failure is in the line of our text.

You may say, "Mr. Root, it is not because we do not work *hard* enough here at our home, for we are already *overworked*, every one of us." But it is not because you do not work enough. Let me give you some illustrations. A few days ago I saw a farmer standing on the walk in front of our store. His wife was sitting in the wagon. I saw they were worried about something, and so I pleasantly asked them about it. The man said:

"Mr. Root, where is your warehouse?"

"Why, we have several warehouses. Why do you ask?"

"I want the one where you keep your poultry-netting. We have been waiting here a long while for one of your men to bring some netting from the warehouse; and if I knew where it was I would go down and get the netting myself, for I must get off home."

I went into the store and made inquiries, and found that nobody had gone to the warehouse for his netting. The clerk who took his order asked another clerk to go and bring the desired width and quality. But clerk No. 2 was busy with somebody else, and didn't go, and *supposed* that clerk No. 1 went for it. Meanwhile the man was walking up and down in front of the store, waiting. His team was standing idle during a beautiful April day; and the good wife—nobody knows the circumstances that made it needful *she* should be at home. Let me digress a little.

During the present spring our people have sent out a great number of price lists of household conveniences—something like three or four thousand in our county alone. The postage on them was thirty or forty dollars. I made objection when I knew of the project; but I was told there were lots of people in our county who did not know what goods we keep, and especially did not know how low we offer to sell things. If I did not do so, I felt like suggesting that we should spend more brains and muscle in waiting on people better when they come to us, and in this way advertise our business rather than to have so many printed catalogs that cost so much money. I wonder if this suggestion fits any of the readers of GLEANINGS. Dear friends, I have had quite a little experience in different kinds of business. I have seen men succeed, and I have seen them fail; and I do believe a great part of the failures have been because the owners of the business did not take care of the trade when it *came* to them. I have known quite a good many who have spent time and money—yes, and brains—on elaborate and carefully prepared circulars, and then I have known them to *lose* the trade just because their customers were not promptly and carefully waited on when they came in answer to these printed invitations. My opinion is, that here at our place of business customers get better care where they send their orders by mail than where they come in person—at least, that is many times the case. Our force of clerks is better organized for office work than it is for the customer who comes in person. It is hard and fatiguing work to wait on customers personally, especially where there are as many departments as we have in our business; but yet it is the *personal* work that builds up business and that *saves souls*. You may suggest to me something like this:

"Mr. Root, don't be hard on your clerks. The case you mention was a misunderstanding. It probably does not happen often."

Well, this may be true; but it does happen too often in our business, and in the same way in every other place of business. I once came up behind a customer when he did not know I was around. He was saying something like this:

"These people here sell goods low, it is true; but I have a good many times thought I would never come here to trade again in the world, for it actually costs about as much as a thing is worth to get somebody to find what you want and tell you the price of it."

And this reminds me, after I succeeded in getting the man's wire netting from the warehouse, and putting it in his wagon, the clerk who brought it did not know what the price was, and more delay was caused because we had to hunt for somebody who *did* know. Perhaps I should say there is at present a tremendous demand for poultry-netting. The different widths, the different sizes of mesh and wire, make many complications; then we have remnants which we offer at special low prices; and, again, the stock takes up so much room that it has to be kept away from the store in a separate building. Somebody who has had experience in mercantile business may say we have not competent men in our retail store, and that perhaps we do not pay wages enough to get a good man. This may be true; and if you will all agree not to tell anybody I will say to you confidentially that we are almost *all the while* wanting *better* men and *better* women (we have a few of them, but we need *more*) in every department in our establishment. Now, do not

tell this; for if you do, a great lot of people will rush here to Medina to get a situation. No doubt they *think* they could fill the bill. But the trouble is, there are only a few in this world of ours who have got at the real great truth in our little text—"Not to be ministered unto, but to minister."

Shall I try to tell you what is needed in such cases? First, we want a clerk who is so well posted in regard to affairs that he recognizes that farmers generally are having a hard time to get along. They are the victims, to a certain extent, of circumstances. Every person ought to have a kindly feeling for the general farming community; and he ought especially to try not to annoy them and hinder them in *their* work. The clerk who took this man's order for the netting should have kept the whole transaction in hand until he saw the man had what he wanted and was started off for home. If he had other customers to wait on he should have brains, ability, and mental strength to feel responsible for each and every one of them, and call the necessary help if needed. If other clerks were half-hearted or dilatory he should have presented the matter to A. I. R., who, at this season of the year, spends a good deal of his time on the sidewalk in front of the store, looking after the wants and needs of those who are so kind as to come to us. I have sometimes wished I had nothing to do but to meet people as they alight from their vehicles, ask them how we can serve them, and then see that there is no hitch nor delay in fixing them up in proper shape.

A few days ago a customer asked if we had any Battle Creek granola. I pointed to the door of the lunch-room, and told him to go in there and they would wait on him. I afterward found out, however, that the clerk inside told him we were all "sold out," and sent him away without any. He supposed it was all sold out because a great awkward box was standing in a disorderly way right in front of the goods the man asked for. The clerk could not *see* the article wanted, without moving the box or moving out of his tracks. Yes, this thing sometimes happens at other stores as well as our own, because I have known clerks to tell *me* they were sold out; but I happened to know better, and so found the goods I wanted, *myself*. Some of you may urge that the clerks in our stores and groceries are, for the most part, poorly paid. Their pay is so small they become discouraged and half-hearted. If their employer were a little more liberal, and paid them better, they would have more energy. And this reminds me: Not long ago one of the small boys was getting to be so forgetful and half-hearted about his work that we talked of letting him go. His foreman, however, said he was dissatisfied with his pay, and he intimated that, if we would raise his wages a little, he *might* take hold better. It happens, however, that I have tried this very thing a good many times, and it has never turned out well. The man, woman, or child who can not do his duty well and faithfully until he is offered a little more than he is actually worth or has *been* worth, for so doing, never makes any permanent improvement.

And this is where our second text comes in—"Thou hast been faithful over a few things; I will make thee a ruler over many things." Notice the words "hast been." The reward does not come until we have shown ourselves faithful and trustworthy. We must be faithful *first*. And so it is with earthly duties. Young people especially are oftentimes impatient because the reward does not come soon enough. Many a time have I seen people give up their work when the prospects were bright before them, just because they could not wait a little for the reward. Quite a few have written to me in regard to the Home Paper for Mar. 15, about the slave girl, and the glad willing service she rendered her deliverer. I said something then in regard to women who help to do the housework in our homes, or hired girls, if you choose. Well, since those words were written I am glad to tell you that I have come across at least *three* of these "home helpers" who are household treasures; and I happen to know that there is always somebody wanting them. I have been insisting that these good and faithful ones should be paid accordingly. In our community, hired girls get from $2.00 to $2.50 a week. Now, it seems to me absolutely "wicked" to have one price for all—the good, the bad, and the indifferent. I know of a good many indifferent ones. I do not like the expression "hired girl." They are helpers in the home. They should be not only helpers, but companions for the mothers in the home. Why not call them "home helpers" instead of hired girls? Well, now, I would pay the real good ones, the real jewels, four or five dollars a week, or a really competent woman as much as you would pay a really competent man, say a dollar a day, including board and lodging. Then the indifferent ones should have about what they earn—two or two dollars and a half. The bad ones—I mean the bad-tempered, or those who do not care, and who make it a study, apparently, to do just as little as they can, and do their work as poorly as they can and call it done—I would give this kind a dollar a week, or give them board and lodging—nothing more. This is the way we grade men, and why not grade women in the same way? then we shall be paying a premium on good behavior, exactly according to the language of our second text; and the low wages will be a proper reward for bad behavior. You may say there are some people who can not do any better—they are not "made that way," or it is not "in them." One of my boys worked quite a while for 7½ cts. an hour, and he felt badly about it. I talked the matter over with him several times; but after trying him in several different places, the general verdict of the different foremen was that 7½ cents was about the proper price. Well, this boy finally became ambitious to have a wheel of his own; but he could not very well save up money enough for a wheel unless he had more than enough to pay for his board and lodging. The wheel, however, proved to be the thing needful to stir up his ambition. All at once he took a new interest in things, and very soon the cheering report came to me that he was worth *more money*. A good many of these troubles are in consequence of half-heartedness. We do not *care* enough. Very likely we care enough about *self*, but we want to be more interested and anxious in the affairs of other people—especially of those whom we are serving or ministering unto.

I do not know but the present condition of this great nation of ours is working against these little texts. We have servants of iron and steel to wait upon us. Wheels, street-cars, telephones, and no end of devices to save labor. Perhaps we are getting into a state of affairs where we get a notion that these new agents are to do *all* the waiting, or all the ministering, if you choose; but, O my dear friends! none of these things can serve us well and faithfully without some patient, hard-working, *self-sacrificing human life* to guide and direct it. With all these new things there comes a *tremendous* demand for somebody who will be responsible for their proper working. We want *no end* of intelligent, faithful, industrious servants—servants who are willing to take

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responsibilities. Human life is often at stake. A man can not get a good position, and one commanding a large salary, unless he is willing to be responsible in a measure for the very lives that are committed to his care. He *agrees* to be minister, or, if you choose, *servant*, to the great busy moving world of people. A great cry is constantly welling up for faithful and *reliable* men and women—for those who are sufficiently interested to keep thoroughly posted—to know all about every thing pertaining to their line of work; and there never was a time in the history of the world when such grand opportunities were constantly opening up as now. There never was a time when men and women were offered such pay as at the present time. But the pay, mind you, goes to those who are willing to serve or minister, and not to those who must be constantly waited upon or ministered unto. I can not tell just where the trouble is in your own particular case; but God's holy book will tell you, if you make it your study. It is full of texts in the line of the sentiment that I have tried to express and explain, and it gives us the promise that God's Holy Spirit will go with it and make it plain; and when you once get to fully understand its import and meaning, oh what a glorious opportunity and privilege is yours! Instead of there being no place for you in this busy world of ours, there will be a place for you everywhere. Everybody will be glad to see you, to welcome you when you come to call on them, and to assist when you need assistance. Only let these little texts find a permanent abiding-place and lodging-place in your heart. It will not fetter you, for it is not bondage at all when you take it right. In fact, it is the spirit of freedom itself—freedom that comes with Christ Jesus, the Savior of mankind, and the Lord of all, who came into this world to demonstrate and show us how to live and get along—"Not to be ministered unto, but to minister."

THE EARLY PEABODY SWEET POTATO.

Our old friend T. B. Parker, of Goldsboro, N. C., took the liberty of shipping us what he calls early sweet potatoes, and explains by saying that they are the Early Peabody. He sent them without orders, prepaid the freight, and said if they were worth any thing to us we might pay him whatever we chose; if not, they would not cost any thing. They are great big red yams; and when I first saw them I said to myself, "Why, these must be some of those big coarse yams that they raise down south. May be we can sell them, however, if we offer them very cheap." But I put two or three in my pocket and asked Mrs. Root to please have them baked for supper. Imagine my surprise when I found them the most delicious and toothsome thing in the line of sweet potatoes or yams that I ever tasted in my life; and you know I have eaten sweet potatoes all through Mississippi and Florida, and even away off in El Paso, across the river into Mexico. By the way, over in that Mexican town of Paso del Norte they sell sweet potatoes out in the streets, cooked and buttered. Well, now about the Peabody yam. Mrs. Root says you must allow for my extravagance, because, since I have got off the meat diet, I call every thing of this kind delicious; but I want you to remember I have been testing sweet potatoes this spring, and there certainly is nothing equal to a medium-sized sweet Peabody yam when baked as Mrs. Root bakes them. They are not really dry and mealy, but it seems to me they are about half way between the dry sweet potato and the moist ones. The grain is very fine, and the taste is more nearly like an exceedingly rich and sweet boiled chestnut—or, rather, a roasted chestnut—than any thing else I know of. Friend Parker says it is the earliest sweet potato known. Now, why has not somebody made a fuss about the Peabody yam before? We are going to bed a great lot of them for plants; and if I can raise as good Peabody yams here in Medina as friend Parker sent me for samples, then I shall just sail my hat clear into the top of the cut-leaved birch that is looking so handsome just now out on our lawn in front of the porch. You see, the birch has got on its spring dress of penciled green, with its dainty white branches gleaming through the beautiful foliage for a background.

TRANSPLANTING VEGETABLE-PLANTS INTO THE PLANT-BEDS.

One would almost think, after the years of experience I have had in this business, that I must have already gotten hold of most of the kinks. But we have just struck on one this spring that pleases me so much that I want to tell you about it. Transplanting when the weather is damp and rainy is all right. If the soil is fine and rich, almost anybody can make every plant grow; but during a dry time, such as we have just had in April, with the thermometer up to 90, and hot dry winds, the plants will die in spite of you. Sprinkling them with water right out in the hot sunshine will not do at all; and if the beds are soaked ever so thoroughly at night, the surface will be all dried up, and the leaves shriveled, before the first night. The way we got at the remedy was this: We had a spell of frosty nights, but the weather was very warm during the middle of the day, and so we were in the habit of putting on the glass over night. Well, one day when I was in a hurry, instead of removing the glass when it became very hot I threw a cotton sheet over it to cut off the heat of the sun. Well, these plants were neglected in some way; but the glass and cotton cloth were left over two or three days. When the cloth was finally removed I uttered an exclamation of surprise. Every leaf was as perfect as if the plants had never been moved from the greenhouse at all; and they had gotten sufficient root so that they stood the fierce glare of the sun after a very little gradual exposure. Now, here is the secret: In transplating, even in very hot weather, use your hot-bed sash for shading; and when the sun becomes *too* hot, cover the glass with shutters, cotton sheets, or blankets—whatever comes handiest—and you can not only save every plant in a thousand, but there need not be any wilting, and no setback of any consequence. The secret of it is, close-fitting sashes that are just right to keep out the frost are also just right to confine the moist air, that is kept moist by the dampness coming up from the shaded soil.

The above was intended for our last issue, but was crowded out for want of space. Since it was written I have made another important discovery, or, rather, I have run into something that was discovered long ago, and which has been neglected and forgotten. In our book, "What to Do," page 184, you will find something that describes pretty nearly the whole matter. Now, we have noticed for several years past, that, when the weather becomes very hot and dry, our lettuce—Grand Rapids, Boston Market, and all the rest—gets dark,

green, and tough, and customers complain that it is bitter; so our lettuce trade drops off until only a few customers who want it regularly the year round are almost the only purchasers. Well, we are now having a hot dry time right in the middle of May, and all the lettuce has been getting to be of poor quality in just the way I have mentioned. One day it struck me that the hot sun was what made it so dark and tough, and so I commenced shading it. The improvement was apparent in even 24 hours. Putting shutters over the beds where the sides were high enough does very well; and spreading a cotton sheet over the whole bed answers an excellent purpose. The sheet can be put on every morning as soon as the sun gets hot, and removed every night so as to let the lettuce get the dew. But the best th'ng by all odds is some sort of box to set right over the whole bed. Single plants may be covered with bushel boxes or old bee-hives or bee-hive covers. If you have any such lying around unused you can make them earn you some money by setting them over the lettuce. In just two or three days the Grand Rapids lettuce will become beautifully white, and so crisp that the leaves will break or snap in two by handling if you are not careful. The bitter taste is all gone, and you have not only handsome lettuce, but that which is delicious, juicy, and crisp. The best covering we have found are the large red boxes that we used to set over our glass sashes when they were not in use. These boxes reach from one side of the bed to the other, and a little more. This gives about the amount of ventilation you need. When we first began putting the bleached lettuce on the wagon we told the man to slip it out of the paper bags and let customers see it. The consequence was, our sales doubled or trebled almost at once, and our stock was sold out almost before we knew it.

Now, then, friends, make haste and get your lettuce covered, and astonish your customers by showing them the most beautiful lettuce ever seen, right during the hottest and dryest weather. We handle it in cheap paper bags, putting ¼ lb. into each bag. At 5 cts. a packet this gives us 20 cts. per lb, which ought to be satisfactory to any grower. My impression is, that none of the large cities have got hold of this kind of lettuce. The man who first introduces it, will make a big thing.

Now, friends get right at it and write me a postal card, and tell me how it pleases *your* customers.

CRIMSON CLOVER, WINTER OATS, ETC.

To-day, May 7, our crimson clover is getting to be just immense. T. B. Terry once invited me to come over and take a look at his medium red clover. Now I should just like to have him come and see our crimson clover. A single seed may produce from 60 to 100 flower-stalks, and each flower-stalk will produce one or more blossoms. I can not tell yet just how many seeds one blossom-head produces. And this stooling-out feature is what misleads so many. They see here and there only a little plant, and conclude there will not be enough to amount to any thing, and so plow it under. But these same little insignificant plants, if let alone, will, along in the middle of May, stool out so that a bushel basket will not cover the plant, and the stalks stand up from two to three feet high. The piece sown among buckwheat, that looked just right in April, is now altogether too much crowded, while that sown among the Ford's Early sweet corn, that seemed to be only part of a catch, spreads out in every direction so that the ground is going to be almost completely covered.

On p. 366 I said that, on the 30th of April, our Rural New-Yorker winter oats were almost ready to head out. Now, that is another of A. I. R.'s blunders. There was here and there some rye that came up among the oats. I pulled up some stalks and saw some kind of embryo head. Very likely some of our old farmers thought Bro. Root had found a new kind of oats *for sure*, or else he was indulging in some big yarns. Perhaps I shall have to admit that I never raised a crop of oats before in my life, which may partly explain my stupidity. But I have something good to tell you about the winter oats, after all. The piece of the patch that I thought was killed out by the freezing and thawing, or nearly killed out, under the influence of our nice April and May weather is going to make quite a stand, after all; and by the time oats are usually harvested I may have a pretty fair-looking field all over. It will probably be too thick where it was covered by snow-drifts.

By the way, I am becoming disgusted with rye. It has got all over my grounds, so that, whenever I try to raise clover, grass, or grain of any kind, a great part of it is *rye*. It can not get in with the crimson clover, however, for this is too early a bird for it.

THE CURRANT WORM AND LEGGETT'S POWDER-GUN.

For two or three years the worms have rather beat us, both on gooseberries and currants. This year, however, I determined to beat *them* if possible. I accordingly provided myself with one of Leggett's dry-powder guns, and we gave the bushes a good dusting with Paris green almost before the leaf was visible. Then we went over them about once in a week right straight along, being sure to get the powder down under the foliage, close to the ground. The consequence is, that at this date, May 6, not a worm has been discovered, and not a leaf is disfigured unless it has been done since I began writing this. You may say, perhaps, they have not injured bushes that were *not* treated. Not so. Both currants and gooseberries belonging to my sister, near by, are entirely stripped of their foliage. You may remember that Prof. Cook advised us to use Paris green instead of hellebore, provided we put it on before there was any fruit on the bushes; and I think somebody suggested that, if a little of the Paris green fell on the ground under the bushes, it would not come amiss. And now a word about

THE LEGGETT POWDER-GUN.

They have for some time past been claiming that they could make the dry powder do as good work as any of the liquid preparations, by the use of their gun. The great point in this is, that is saves you from carrying around heavy barrels of water. If I am correct, they state that ¼ lb. of Paris green, with their machine, can be made to cover an acre of potatoes. All you have to lug about is 4 ounces of the poison. If dissolved in water it would take a barrel or more. You may ask why the Leggett machine is better than the bellows we have advertised. It is better in this respect: You can throw the poison in a little cloud that is almost imperceptible to the eye, and yet it kills the insects. The machine is worked by crank and gear-wheels, giving a strong, steady blast; and the feeding machinery is so accurate, and easy of adjustment, that you can easily make ¼ lb. go over a whole acre. So far we rather like the new machine. The prices, however, are pretty high—$5.00 for a small one, and $7.50 for one large enough to throw the powder all through a large apple tree. For the coddling-moth, the *Rural New-Yorker* thinks it is, perhaps, just as good as liquid preparations; but for applying

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the Bordeaux mixture, they have not as yet succeeded in giving us a powder that would stick to the foliage as well as the Bordeaux. By the way, the Bordeaux mixture may be found on the leaves of apple-trees and on the grass, even after a tremendously heavy rain; and this is the case when the rain comes the same day the mixture is applied. We shall use the Bordeaux mixture as a fungicide for scab; but I think that, hereafter, we shall use the powdered Paris green for all sorts of insects. We shall, however, add Paris green to the Bordeaux mixture, because we can just as well put on both as only one.

A few days ago a swarm of Colorado beetles alighted on our Thoroughbred potatoes. In the morning there was not a bug in the patch; but in the afternoon there was one on every stalk, and on some of them there were half a dozen bugs. In fact, they had done quite a little damage in only about two hours' time. We got out the Paris green; but the Thoroughbreds were so very valuable I could not wait for the bugs to become sick. So a small boy was started out with a tin basin. In about an hour he had nearly a teacupful. He went right over them again and caught almost half as many more. In fact, they were on the wing, buzzing all around. By the next morning, however, I found only one bug in the whole patch; and I could not really say which offended the bugs the more—being mashed in the road, or physicked with poison. Now, here is another funny thing:

Over in the apiary there is a cold-frame warmed by exhaust steam, perhaps 20x30 feet; and in this cold-frame is the most luxuriant growth of Thoroughbred potatoes that anybody ever saw in the line of potato foliage, I do believe. Before a heavy rainstorm laid them down the vines stood fully 3 ft. high, and they were as thick as your thumb. As they were started too early for flea-beetles or Colorado bugs, every leaf in the whole patch is bright, clean, and perfect. Now, there has never been a bug on these at all. Has the rank growth something to do with it, or is it because they have not found the patch? Those I have spoken of, where the bugs went at them so viciously, had recently been transplanted from the greenhouse, and the growth was comparatively feeble, for they had not yet got well started.

Later.—I have just made another examination, and there is not a live bug in the whole potato-patch, although I found a good many dead ones on the vines, and a good many more on the ground. Paris-green powder did it, without question; and yet the amount used was so small that one could scarcely see it at all as it came from the gun. Another thing: I have always been prejudiced against liquid Paris green, for it is so liable to injure the foliage, especially if it is used too strong. This almost imperceptibly fine dust could scarcely injure the most delicate plant. I am sure, however, the Leggett guns are too expensive. While the mechanism is rather nice, a machine that will do the same work ought to be afforded for a great deal less money. There is no need of adding any flour, lime, or any other dust, to the Paris green. The manufacturer of the guns says distinctly that pure Paris green properly applied is better than any admixture with any thing else.

DWARF ESSEX RAPE.

So much inquiry continues to come in in regard to this plant that we give place to the following which we clip from a recent issue of the *American Agriculturist:*

On moderately good land, in this State, one can raise an excellent crop of Dwarf Essex rape, which can be used as forage to feed in the stables, or it can be pastured with as good, if not better, results. We have grown it at this station the past two years, and have secured at the first cutting from 8 to 12 tons per acre 90 days after planting. We plant in rows 28 to 30 inches apart, and cultivate, giving only surface or shallow cultivation. It may be sown broadcast, but the weeds in that case are likely to make the yield per acre less than by the other method. We have allowed it to reach from three to four feet in height before cutting the first time, and even then the sheep have eaten stalk and all, not leaving any part of it. It is necessary to starve the sheep to eating it at first. They will, if turned into the rape patch, eat dry grass before they will touch the rape; but if kept there about two days they will take to it, and from that time on no trouble will be experienced, unless it is to keep them from eating too much. I know of no crop that is so easily raised that will furnish more or better sheep feed to the acre than the rape. It may be sown in May, and will be ready for pasturing in July and August. Or it may be sown in June, or even up to the latter part of July, and this last seeding will furnish, under moderately favorable circumstances, a large amount of pasture or fodder. On Ohio soil it may be sown after taking off a crop of early potatoes, or after harvesting the wheat. Our experience justifies the remark that the latter seeding grows much more rapidly than the earlier, indicating that it is well that the ground should be pretty warm before seeding in the spring. After the first cutting or eating off, it will start a second growth and will continue to grow until after the ground has been frozen several times in the fall. We have had it growing on the station grounds as late as the middle of December. Rape possesses remarkable fattening properties. The nutritive ratio of green rape as given by Wolfe is nearly one to three, while that of red clover in blossom is hardly one to six.

The other side of the rape question is found in part, at least, in the following interesting facts: When sheep are first turned in on rape; or, rather, after they have got to eating it nicely, it is necessary to guard against turning them into the rape patch when they are very hungry, as they may overeat and suffer from indigestion, or they may die from bloating. There is also danger or liability of purging at first. If the sheep have access to an old grass pasture when first turned on rape, it will be very effective in preventing scours, as well as other disorders likely to arise from impaired digestion. If the first few days are passed without trouble, it is not necessary to remove the sheep from the rape patch, but it will always be judicious to look after them frequently. The greatest objection I find to the rape plant is that no crop depletes the soil more rapidly. It is stated that lambs fed upon rape gain from seven to twelve pounds per head monthly, and that an acre of it will feed over thirty sheep for two months.

LATER FROM OUR CRIMSON CLOVER.

At this date, May 12, it is in full bloom, and we are at work plowing it under.* The bees are making quite a roaring upon it, and especially the bumble-bees. I think I never saw so many bumble-bees on a small area before; and I never saw as many Italians on the same area of *red* clover, although I think I have seen more on a good stand of alsike. I told our apiarist that honey was coming in, for I could smell it at the entrances. He thought not; but next morning he said I was right—the bees were getting a good deal of honey. It does not follow, however, that the honey comes from the crimson clover, for we have not more than an acre that is a good stand. Up in the swamp garden is a piece of asparagus that has never been cut, as we thought it was not old enough. The consequence is, it is as high as your head, and in full bloom; and I think there are more Italian bees on that asparagus—that is, more bees to the "square *inch*"—than I ever saw before. The

* There is no question but that crimson clover mellows up the ground and furnishes a nice rich soft seed-bed, for potatoes or any other crop, fully equal to a heavy growth of red clover. To get a red-clover stand it takes a part of two years; but to get an equally heavy growth—root, branch, and all—of crimson clover, it takes only a part of *one* year.

happy hum—or happy roar, rather—is "like the sound of many waters"—just the sound, in fact, that ought to bring joy to the bee-keeper's heart. Now, if we could have, say, 100 acres of asparagus, where it is not cut for market at all, I rather think we should have something interesting to tell bee-keepers.

This morning, May 13, it is amusing to see the Italian bees humming disconsolately over the plowed ground where the crimson clover stood yesterday. We let it stand for bees till only the tips of the heads were yielding honey. Now, if a single stalk can be found anywhere that did not get turned under, a great lot of bees are pouncing on it. And this reminds me that the potato-beetles are out in greater force, too, than I ever knew before. We have just had to fight for our Thoroughbreds; and wherever a volunteer potato-stalk comes up in the fields, a dozen bugs or more pounce on it at once, and devour it in no time.

LATHYRUS SILVESTRIS.

This is now fully three feet high, and is just a tangled mass of solid "feed." I am speaking, however, of the little plot in our plant-beds. That which is planted off in fields did not stand the drouth so well last summer, nor has it stood the terrible freezing and thawing so well this spring; but notwithstanding this, I think it promises well. Why do not more people tell us how it has turned out? Two years ago we sold certainly more than 1000 five-cent packets of the seed.

THE WHITTAKER ONION — SEE PAGE 751, OCTOBER, 1895.

These are just proving to be immense. There are at this date, May 13, beautiful onions, almost as large as hens' eggs, and great bright-green tops, with not a single seed-stalk to be seen in the whole patch, and they wintered with almost as perfect a stand as the Egyptian winter onion. I tell you, I would not take a good lot of money for that patch of Whittaker onions. In size they are ever so much ahead of the White Multiplier or American Pearl at this season of the year; and the large bulbs, when mature, are fully as large as the average Globe Danvers onion.

THE BREED'S WEEDER.

Since printing our illustration on page 231 we have had quite a little experience with weeders; and we are surprised to find they can be worked on our clay soil much better than we expected. For instance, we planted a piece of land to peas, beans, and corn, all the same day. The seeds were all put in with a common grain-drill having part of the holes stopped up. Just before the seed came through the ground we went over it with the weeder lengthwise, leveling up the drill-marks. A little later we went over it again crosswise, breaking every particle of crust, and leveling all furrows and depressions nicely. After the plants were well up we went through it again lengthwise, and the soil was stirred perfectly around each plant. It is just as if you had taken your fingers or a rake and pulverized and loosened the surface clear up to the very plant itself.

There is not any crust anywhere—not even a piece an inch square. No cultivator has ever been put on to the soil as yet, and I hardly think it will need one. I have just been told that a neighbor of ours raised a fine crop of corn last year from a ten-acre lot, taking no other tool into the field after the corn was planted than the Breed's weeder.

Besides the one illustrated on page 231, we have a hand weeder on wheels, made to work especially among onion-plants, and this machine is also doing splendid work among all kinds of plants too close for a horse to go through. It works a strip of ground 2½ ft. wide; but as it is rather hard work to make the fingers go down to a good depth in our clay soil, we have one boy to pull it with a piece of rope while another does the pushing. Two boys, 14 or 15 years old, it strikes me, will do more weeding, and do better work, than a gang of a dozen in the ordinary way. Of course, you must keep the weeder going, and never let any weeds get big enough to slip by the steel fingers. The question may arise, Is it not an advantage to stir some kinds of soil down to a greater depth than the weeder does it? I am not satisfied in regard to this point as yet. Our Whittaker onions are just now making bulbs. The ground is so hard that it heaves up in little chunks around the onion-bulbs. I am going to try a part of the patch by running the single-tooth wheel-hoe between the rows, say two or three inches deep, so as to loosen the ground a little deeper. You see these onions have stood all winter. The ground has not been plowed or harrowed except the surface-working we have already given it.

PLUMS AND CHICKENS.

A neighbor of ours who grows plums and raises chickens has just brought me a branch of great beautiful green plums, without a curculio sting on any one of them; and he says every plum on the whole tree is absolutely free from damage. This tree stands in a little enclosure where a dozen chickens are kept. Of course, they keep the ground entirely bare, and catch every insect which unluckily drops within their reach. Other plum-trees of the same kind, where the poultry are fenced away from the trees, have scarcely a perfect plum—they are all stung by the curculio. Now, this thing is not exactly new; but why is it that chickens are not more used to protect plums? The plum-trees in the chicken-yard have never been "bumped" once, to shake off the insects.

WHEN IS THE BEST TIME TO PLANT POTATOES?

Much depends upon the season as well as upon the locality. All things considered, for our locality I should say now. We have had, however, for years, excellent crops of potatoes when planted all through the month of June. We put them in as soon as some other crop is off and a piece of ground is vacant. Certain varieties of early potatoes have also done well when planted the fore part of July. The very best crop of Freeman we ever raised was planted in July, after strawberries. Monroe Seedling also does nicely for late planting providing the seed, like our own, was raised from a late planting the year before. Early Ohio, Freeman, Monroe Seedling, and the New Craig, are all keeping nicely so far in spite of the severe hot weather; and each and all of them are in good condition for planting.

THE CRAIGS FOR A LATE SPRING TABLE POTATO.

Mr. Root:—Those Craig potatoes in my cellar are still in good condition—in much better shape than several other sorts I have just planted for a dealer; viz., Carman No. 3, Great Divide, Pere Manor, Table King, Banner, Pride of the South, Brownell's Winner, King of Early, Early Wisconsin, Salzer Earliest, Champion of the World, Wisconsin Beauty, Maule's Thoroughbred, Burpee's Extra Early, Arizona, and others. C. N. FLANSBURGH.

Leslie, Mich., May 4.

I may explain to our readers that friend F. grew quite a quantity of Craig potatoes for us last season. His report agrees with ours exactly. The Craig potatoes are firm, solid, and have scarcely a perceptible sprout, while almost all other varieties have suffered more or less from the recent hot weather in April; and so far as quality is concerned, at this season of

the year as a table potato they are second to none unless it is the New Queen and Freeman. This, in addition to the fact that they are such tremendous yielders in most localities, I think is destined to make them valuable.

MAULE'S NEW THOROUGHBRED POTATO; A REPORT FROM THEM OUT IN THE FIELDS, FROM GOLDSBORO, N. C.

Friend Root:—They are in full bloom, and have been for several days past. The tubers are about half an inch in diameter—the largest ones. They are setting them very nicely all along the root, from bottom to top, and well spaced apart, and distant from the main root or stem, all of which are good points. They are not as early, nor as vigorous growers, as is the White Bliss Triumph up to this date. How this will compare further on will have to be determined by later experiments. I am satisfied of the fact that they are better potatoes than Maule's Freeman or Irish Daisy—stronger growers and better yielders, etc.

THE COLORADO BUGS HAVE ALREADY PASSED THEIR OPINION IN REGARD TO THE QUALITY OF THE THOROUGHBRED.

I met Mr. T. B. Parker, who, by the way, bought a barrel of Thoroughbreds of Maule, and let several parties have a peck of them. My brother-in-law and myself each got some from Parker; and our experience has been all the same with respect to potato-bugs. They appeared with the potatoes as they came above ground in early spring. I have one acre of the White Triumph, separated only about forty yards from the Thoroughbreds, and I have found bugs on but about three or four hills of the Triumph, in the last few days, while quite a while ago I treated the entire patch of Thoroughbreds to kill the bugs that were all over the plot.

Parker has half an acre of Thoroughbreds, and about six acres of the Triumph, lying right by the side of the Thoroughbreds. He says he has more bugs on the latter than on all the rest of his six acres. So we concluded that Maule's potatoes are "thorough" as to bugs as well as to potatoes.

Goldsboro, N. C., May 12. A. L. SWINSON.

Health Notes.

HORLICK'S MALTED MILK.

After reading what is said on page 265 I made some experiments to see if I could get the bees to take Horlick's malted milk as they take rye flour, but I did not succeed; but I did succeed in finding it one of the most delicious and strengthening food products for myself of any thing I have ever gotten hold of. In fact, it seems almost ridiculous to think that a little package of this powder, that can be easily carried in the vest pocket, would furnish so much strength and endurance. The way I use it is as follows: Put a heaping teaspoonful into a teacup, and pour on the hot water. Stir it up, and it is ready to take. Some of our folks put in salt and pepper, and they say it resembles oyster broth. My favorite way is to prepare a cupful as above, and then break in pieces of rye zwieback, which we get from the Battle Creek folks. After trying all kinds of bread, including whole-wheat flour, I have settled down on zwieback made of rye bread as furnishing more strength than any of the others; and with the malted milk it makes a most complete ration. Permit me to say again that it is simply astonishing to think a teaspoonful (or even a tablespoonful, if you choose) of malted milk can contain so much nourishment. The only drawback that I know of is that it is tolerably expensive; and yet it is not more so than ever so many other things that we buy for food, and think nothing of it. As a concentrated food—that is, something that can be compressed into small bulk, and with little weight—my impression is that malted milk stands nearly at the head; and with hot water at hand, a good "hot supper" is made ready in less than a *minute.*

KAFIR CORN AS A "HEALTH FOOD."

We clip the following from the New York *Tribune* of April 15, from the pen of F. D. Coburn, Secretary Kansas State Board of Agriculture:

Important developments in the adaptability of these new grains for milling and food purposes seem likely in the near future.

The product of these grains is on the market to some extent as "Kafir meal," "Kafir flour," "Kafirena," "Kafir Graham," etc., and challenges comparison with any of the so-called "health" flours, at one-half or one-third their prices.

To your article on zwieback you might have added, "Zwieback dissolved in hot water, sweetened, makes the best baby-food. C. HARKENS.

Long Prairie, Minn.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

VEGETABLE-PLANTS FOR MAY 15.

We have a fine stock of every thing mentioned in our last issue, and our sweet-potato-plants are now in excellent trim to set out. Until further notice we will furnish the Yellow Jersey sweet potato and the yellow Peabody Yams at 25 cents per 100, or $2.00 per 1000 The General Grant bunch sweet potato and bunch yam will be 40 cents per 100. If wanted by mail, add 25 cents for postage.

Strawberry-plants are now too far along to send out safely, as they are covered with blossoms and green fruit. As long runners are already out, however, with seasonable rains we shall have new plants ready to ship, some varieties in June. We will notify you when they are ready.

We have some very nice Prizetaker onion-sets, as large as a leadpencil, or larger, at only 15 cents per 100, or $1.00 per 1000. If wanted by mail add 10 cents per 100 for postage. This is more than the postage given in the price list, because they are extra large and strong.

A DOLLAR'S WORTH OF SEED POTATOES TO EVERYBODY WHO SENDS US A DOLLAR FOR GLEANINGS.

It does not matter whether the dollar is for past, present, or future. Whoever pays us a dollar for GLEANINGS gets a dollar's worth of potatoes; and whoever pays us a dollar for seed potatoes has a dollar's worth of GLEANINGS if he wants it. We have still remaining the following kinds: Early Ohio, Freeman, Lee's Favorite, New Queen, Monroe Seedling, Beauty of Hebron, State of Maine, Rural New-Yorker, and New Craig. For prices see page 266, last issue. *New Craig for the rest of the season only 75 cents per bushel, or $2.00 per barrel; seconds, one-half price.*

Hundreds of bushels of potatoes have been given away already, and there are hundreds more to be given to the subscribers of GLEANINGS. All you have to do is to pay up arrears, or send in money in advance. Every dollar you send us for GLEANINGS entitles you to a dollar's worth of choice seed potatoes. You can make your own selection from the above-named varieties.

THE BEE-KEEPERS' ARMENIAN FUND.

Contributions up to date are as follows:

Amount previously acknowledged	$77 97
F. I. Weaver, Courtney, Texas	2 00
E. Pickup, Limerick, Ill	1 00
J. P. Cooper, Pikeville, Tenn	1 00
	$81 97

I shall want GLEANINGS as long as I keep bees, so don't stop it, even if I am back a little. The sermons, footnotes, and gardening help me much.

Yarmouth, Me., March 23. L. B. TRUE.

Everything of the Best at Right Prices for Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse, Rarest New, Choicest Old.

Elegant 168 page catalogue free. Send for it before buying. Half saved by dealing direct. Try it. Seeds, Plants, Bulbs, Small Trees. etc., sent by mail to any office in the U. S. postpaid. Larger by express or freight. Safe arrival and satisfaction guaranteed. **42nd Year. 1000 Acres. 29 Greenhouses.**

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"Young Queens by Return Mail" -:-

from the South, bred from our *hardy strain* of Gray Carniolans and Golden Italians Untested queen, 75c; tested, $1.50. If you want a fine imported or a select tested breeding-queen, or bees by the pound, nucleus and full colonies, we can furnish you at *bottom prices*. We never saw foul brood or bee paralysis. *Satisfaction guaranteed.* Price list free.

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BEE-SUPPLIES.

Largest stock and greatest variety in the West. Best goods at lowest prices. Catalog of 75 pages free.

E. KRETCHMER, Red Oak, Ia.

1896 To my customers and friends: Please remember that W. H. Laws is again headquarters for Italian queens, leather colored or golden, your choice. Past favors are the stimulus to greater efforts I am trying to merit your patronage. Try me. Single queen, 90c; 6 for $4.50. Tested, $1.00; 6 for $5.00. Breeder, $2.00 each. Reference, A. I. Root Co.

W. H. LAWS, Lavaca, Seb. Co., Ark.

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Malted Milk

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VOL. XXIV. JUNE 1, 1896. NO. 11.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA, OHIO.

MURRAY-HEISE
CLEVELAND O

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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E. R. ROOT, Editor of the Apicultural Departments.
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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

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STRAY STRAWS FROM DR. C. C. MILLER.

GRAPE POLLEN is light yellow.

PROSPECTS still brilliant for a crop of honey, May 18.

THE *Iowa Homestead* reports an utter failure with crimson clover sowed on 50 acres with timothy in August.

I DIDN'T KNOW alsike could grow so big. An acre on my place has lots of leaves measuring 2 inches by 1⅛. Bees are working busily on it May 18.

MELT HONEY *slowly*. It takes time. It takes time at 212°, and very much more time at 150°. Melted at 150° it's all right, and 212° it's ruined. Give it half a day to melt a gallon.

NEVER HAD combs troubled with worms after they had stayed out over winter where they could freeze, and I never had a set of combs on which a colony of bees died in spring that failed to become wormy, if not cared for. [So here.—ED.]

M. BORIS SPŒRER, in *L' Apiculteur*, says liberty of the press is a fine thing; but he thinks the insertion of many articles without being accompanied by "rectifying notes such as the footnotes of GLEANINGS and *Revue*," is not liberty but anarchy!

WE MAY CONCLUDE, I think, that in some cases bee-stings cure rheumatism, while in others they produce no effect. And I don't think it makes so much difference what kind of rheumatism as what kind of people. You know stings affect different people very differently.

"IT IS MORE COMMON," says James Heddon, apparently indorsed by Hutchinson, "to find imperfect honey in the comb than in the extracted form." Is that so? I feel pretty sure it's just the other way where I've had a chance to observe. [It depends upon what is meant by "imperfect honey." If they mean ripened, I should be inclined to agree with you.—ED.]

VERY LEVEL was the head of the editor of *Review* when he said, "I am well satisfied that all this opposition to the amalgamation of the Union comes about from a lack of thoroughly understanding the matter." I don't remember seeing a single objection that was founded on fact and not fancy.

"THE LINES OF READING are very seldom diagonal to the edges." I read on p. 391, and that made me measure the page on which I was reading, only to find the margin $\frac{1}{32}$ inch wider at top than bottom. I don't like to read things that make me see faults in others that didn't trouble me before.

M. SIBILLE seriously proposes to domesticate the bumble-bee, so as to start out in the spring with a full colony instead of, as at present, with a single bee. A page and a half of *L'Apiculteur* is given to the matter; but I don't clearly learn just what advantage is expected from it if he should succeed.

I RECANT! I've always said I never saw bees work on strawberries; but this year they're at it, sure. [If you didn't claim any more than that you didn't see them, why recant? Now that you have seen them, you are to be commended for acknowledging it. But, say, do you mean that the bees worked on the blossoms or on the berries?—ED.]

M. BERTRAND, editor *Revue Internationale*, thinks the novice in Europe will do well to serve his apprenticeship with native bees. He hints that the black bees of America are not as good as in Europe. [This is quite likely true. The British favor their blacks; but over in this country they are pretty much tabooed by up-to-date bee-keepers.—ED.]

RATHER COOL of Hutchinson and Rambler to decide there will be no more important improvements in appliances for the production of honey. How do you know? [We must judge the future largely by the past. If there is nothing new in store for us, then the past has failed to bring us progress. What of the extractor, the movable frame, comb foundation, bee-smokers, bee-escapes, and a myriad of "little comforts"?

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THE RAILEY SUPER, p. 385, is not new. Mr. Funk sent me a super of that kind years ago. Nice when it works just right, but I think it doesn't continue to work all right. Shrinkage, you know. Nice to empty, but "Ed." is wrong in thinking it can be filled more easily than T super; also in thinking that sections would be brought nearer the brood-nest.

COLLECTING bad debts turns out to be another of your specialties, friend A. I., p. 397. I wish you'd try your hand on the only bee-keeper that ever tried to defraud me. I'll give you 120 per cent commission. I sent him a book on faith several years ago, and can't get a word of reply. He's not dead, for a communication signed by him appears in last GLEANINGS.

YOU MAY REMEMBER I had a patch of crimson clover sowed May, 1895. It bloomed last summer, but was still green when winter came. This spring it seemed about all gone; but now, May 16, there's quite a lot, perhaps a tenth of a stand, and bees are busy on the blossoms. And isn't it beautiful! [There is certainly no prettier sight on a farm than a field of this clover. —ED.]

SKYLARK, *dear* Skylark, what does ail you? Have you and Doolittle both gone daft? Because I said in *A. B. J.*, p. 211, that a heavy shipment of California honey north made competition, you seem to understand that I object to the competition. Why, bless your heart, I never thought of objecting. You've as good a right in Chicago as I. Please correct right away before some one else jumps on me.

IT'S KIND of friend Porter to tell you the faults he finds in GLEANINGS; but, pray, what possible good can several pages of such criticism do us readers? Keep 'em to yourself, hereafter, and don't print any in the number you send me. [It is because I should like to know what others think about it. If our readers don't want such criticisms, let them speak out and I'll keep 'em to myself hereafter.—ED.]

I WISH some one opposed to amalgamation would give a synopsis of the objections—not groundless objections, but those that have at least a little ground to rest on. Number 'em too, please, so's to save trouble of counting. [The majority are opposed to having an international organization. The quickest and most feasible way is to leave out of account the North American, and make the Union what you and the rest of us want it to be.—ED.]

J. B. KELLEN, editor *Luxemburg Bienenzeitung*, discusses the proper place for the fly-hole, or entrance, to a hive. In this country it's almost universally at the bottom of the hive. In Germany it is at the bottom in some localities, in others at top, and in others at the middle. Herr Kellen thinks the middle point is best for the health of the bees. I'm quite inclined to favor a small hole at the middle in addition to the bottom entrance. [Mr. Hoffman, of Hoffman-frame fame, a German, favors two entrances—one at the bottom and one part way up. When I visited him the bees used both entrances very freely.—Ed.]

AN "INFALLIBLE" WAY TO SELL HONEY.

I have read of many ways to sell honey in the home market, but none of them satisfies *me*. In the first place, we have no home market. There are fifty bee-keepers—yes, a hundred—for every city and town in California. Then many workingmen who live on the outskirts of the towns keep a few colonies and sell the surplus to their neighbors. But, worst of all, many gentlemen keep a few bees at their country residences, to supply their families with honey. This last is an outrage, and should be stopped by the Union. What business has a gentleman with bees, anyhow? So we have been compelled to sell to dealers, and take what we could get. I took a ton of honey to San Diego, and, failing to get a fair offer from the dealers, I drove around to a fine large retail store and went in. I stood listlessly looking about, as if I wanted nothing and cared for nothing in all the world, only to be let alone. Soon a man stepped up to me.

"How do you do, sir? What can we do for you?"

"You can do nothing for *me*, but you can do something for yourself if you so wish. I have a fine article of comb honey for sale."

"Well, I just promised Thompson to look at a lot he has just above, near the corner."

I walked out and stood on the tow-path until he returned, nail-puller in hand.

When he opened the first case he started up and shouted, "Thompson! Come here!" to the owner of the other honey. "Look here, Thompson; *here is honey!*"

"Where do you make this honey?" asked Mr. Thompson.

I looked at him rather contemptuously, and asked, "Are you a bee-keeper? Do you *make your* honey? Bees gather mine from the flowers."

"Well, Thompson," laughed the storekeeper, "if you do, you have made a bad job of it this year. But the gentleman will gratify you by giving his name and where he, M---, gathered his honey."

"My name is Skylark—the great and renowned Skylark, known and beloved wherever the music of the bee breaks the morning silence or floats on the evening air. My name is Skylark, of GLEANINGS IN BEE CULTURE."

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"Who is he?" asked Thompson.

"GLEANINGS IN BEE CULTURE! The greatest bee-periodical in the world, and you ask me who is *he?* and you a bee-keeper!"

Here there was a great roar of laughter at Mr. Thompson's expense; for by this time the sidewalk and half the street were blocked up with people.

"But how do you get such nice honey? I want to get white honey too."

"Well, Mr. Thompson, in your locality, and with your management, you will have to do two things—"

"That's it—that's what I want to know," said Thompson.

"In the first place, subscribe for GLEANINGS IN BEE CULTURE, $1.00 per year, A. I. Root Co., Medina, Ohio. In the second place, scrub down each individual bee with soap and water, every morning, during the honey season.

At this, there was another wild roar of laughter and a clapping of hands. Unfortunately for me, however, at this moment a donkey, about a hundred yards down the street, gave three of the most unearthly brays that I ever heard in the donkey kingdom. An urchin in the crowd cried out, "There's another feller that want's to sell his honey."

This brought down the house—or, rather, the street. At this point the partner of the merchant mounted a box in the doorway, and shouted, "John! buy the whole load and get that lunatic away!"

"Well," said the storekeeper meekly, "will you let up if I take 25 cases at the price you name?"

"I will, with great pleasure; and I am only sorry I did not let up before that other donkey set up his opposition song. But, gentlemen, I am still the far-famed, undaunted, unterrified Skylark, of GLEANINGS IN BEE CULTURE, even if a ragged urchin did turn the laugh on me. This circus is now adjourned—to be renewed in some other part of the city."

I was not long in selling out. This is truly an infallible way of selling honey. But I don't want you fellows to be going round in the Eastern cities, representing yourselves to be the true, original, and unadulterated Skylark, of GLEANINGS IN BEE CULTURE. If you do, you will be detected, for some one will ask you to lend him a bale of undeveloped intellect, and you won't have it about your clothes."

THE CALIFORNIA HONEY EXCHANGE.

I see that Rambler has full charge of the California Honey Exchange. This is as it should be—a professional bee keeper at the head of it. When the Association announced that the secretary need not be a bee-keeper I thought they had made a great mistake. In fact, I did not see how any other than a professional could carry on the business. As I understand it, Mr. Youngken, the former secretary, got tangled up with apicultural terms and names, and voluntarily resigned. The directors at once put J. H. Martin (Rambler) at the head of the Exchange, satisfied that he could jerk the kinks out of all the apicultural terms at the present time out of jail.

THE PACIFIC BEE JOURNAL.

The *Pacific Bee Journal* for April comes to us in a new Sunday dress. It is very much improved, inside and out. In the galaxy of distinguished writers are Skylark, Prof. Cook, and Rambler. What more do you want to carry any periodical on to success? If you fellows in the East want to know any thing about bees you had better subscribe at once.

What has become of the *Rural Kansan*, née *The Kansas Bee-keeper?* Has it, too, given up the ghost? I have not seen any thing of it for two months. It had entirely too many departments to be intelligently conducted by one person. Every one is not a Skylark—not by a long shot—equal to any occasion.

TWO STARTERS IN A SECTION.

HOW TO FASTEN FOUNDATION IN BROOD-FRAMES AND SECTIONS.

By B. Taylor.

Mr. B. Taylor:—I see by your article in GLEANINGS, page 102, that you use two pieces of foundation in sections. Will you please explain to me how you put it in, and what kind of section-holder you use? I have been using the T tins and full sheets in sections; but last year they came down and caused lots of trouble. I put foundation in with the foot-presser, so I should like to know how you work them. My sections are hard to clean. I also use the 4¼x4¼x1⅞, Root smooth section and L. hive. You will confer a great favor if you will please answer and make plain these few points.

Crestline, O. ABRAHAM KOONTZ.

Mr. Root:—The letter above given is a sample of many I have received lately. The question of putting the foundation both into sections and brood-frames is of far greater importance than is generally supposed, if we would have the brood-combs in the best condition, and the section honey of fine finish and best shipping condition. In my early experience in using sections I fastened the foundation with melted wax, using a camel-hair brush, and many other methods of doing the work. I had no trouble from foundation falling out; but the method was slow, and the job not as neat as I wished; so when the pressure machines were brought out I at once adopted them and used that way for many years, but never with entire satisfaction; for, with all my care, more or less foundation would come loose; and a few pieces be-

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coming detached in a super would spoil the whole super of honey for fancy goods. As that was the only grade of honey I was ever satisfied with, I was greatly annoyed at any cause of failure. So I experimented for years to perfect a pressure machine that would fasten the starters (I had not used full sheets as yet), so they would never get loose, but I did not succeed; so when the heated-plate machines were mentioned I at once constructed one that worked like a charm. The question of putting either starters or full sheets in sections seemed for ever settled; but in this I was disappointed, especially in using full sheets of extra-thin foundation. I tried several of the highly recommended machines; but with all my care, the sheets of foundation would frequently come loose and spoil a super of fine honey. During the last five years of poor honey crops the evil has been greatly increased; for in each of those years we had many unused supers of prepared sections left over to be used another year; and the foundation fastened by the heated-plate machines was always in such condition, when we wanted to use them again, that the sections had to be taken from the supers and returned again. This caused more waste of time and material than I could afford; and three years ago I returned to the melted-wax plan, and I have no doubt this is a final settlement of the question of fastening foundation in sections. With me I can easily put two pieces in 2000 sections in 10 hours, and *every piece will stick for years;* and if a honey crop fails, the prepared supers of sections can be piled in a dry room and covered carefully from the light, and the sections will look new, and the foundation will be accepted by the bees as readily as new; at least, that is my experience.

The question is continually asked, "Does it pay to put two pieces of foundation in each section?" Yes, sir, it does. I would not use sections with only one piece, even if they were furnished free; for I want and will have my section honey built solid to the sections on all four sides, and can have them so by using sections eight to the foot, and a "Handy" slotted and cleated separator between each two sections, with two pieces of foundation fastened firmly, exactly in the center of each. The reason I want this is because such sections of white honey will look "just splendid," and I can ship them a thousand miles without a broken comb, if properly crated. I put a half-inch piece of rather heavy foundation in the bottom, and the top piece wide enough to come within ⅛ inch of this, and all to be ¼ inch from the side of the sections. I know the order is generally given to fill the sections chuck full of foundation; but I tell you, after much experience, that foundation should not touch the sides of either brood-frames or sections until the bees have drawn it partially out; for if the foundation touches the wood, the bees will immediately stick it fast, whether it is in the right or wrong place.

I send you herewith the simple tool I use to handle the melted wax. I have one of the Handy comb-levelers standing near by with the leveler removed, and a pan of melted beeswax put in its place, and the little battle-ax paddle in it. In one hand a block is held, on which a section is dropped; a piece of foundation is laid upon it, and is exactly in the middle of the section, and touching the wood. The hot paddle, with a little wax draining from it, is drawn quickly between the wood and foundation. A slight downward pressure of the fingers is exerted on the foundation, and is stuck neatly exactly in the right place, where it stays through thick and thin, until needed for final use. But I must caution you that the bottom piece of foundation should not be more than ⅛ in. wide, and must be fastened firmly, or it will lop over when warm, and make bad work.

My brood-frames have a slot in the center of the bottom of the top-bar, ⅛ inch deep, made with a saw ⅛ thick, so the foundation will go in easily. I have a block that holds the foundation in the center. Slip the edge of the foundation in the slot; lift the paddle from the hot wax; drain the contents quickly along the saw-groove, and it is sealed fast in exactly the right place to stay, and will pull in two before it will come loose This is a cheap and rapid way of fastening foundation in brood-frames, and I can not but wonder that it is not in universal use among bee-keepers.

Forestville, Minn.

[I have tried your "battle-ax;" and, while I could make it work, it doesn't begin to put in starters as rapidly and as well as the Daisy fastener or any other device I ever tried that employs the heated plate. It is an easy matter to put in 500 starters per hour with the Daisy; and if the lamp is turned up so that the plate is hot —real hot—a starter will never drop out. Your unfavorable experience with the heated-plate machines was possibly due to your plate not being hot enough.—ED.]

B. TAYLOR'S HANDY BEE-HIVE.

SPACERS ON THE FRAMES OR IN THE HIVE-RABBETS; THICK TOP-BARS; SLACK OR TAUT WIRES; HORIZONTAL WIRING.

By Dr. C. C. Müller.

I don't know, friend Taylor, that you have said so in just so many words, but I feel pretty sure that you think I would do well to change from the hives I am using, to the Handy hive, that you prefer to all others. I don't think

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with you, and I'll tell you why I don't believe it would be even advisable to put a colony of bees in it to try it. I have tried hives that I esteemed less than this, and I have had no little trouble therefrom; and it might not be a safe thing to tell every man that a hive of his own invention wasn't the very best thing in the world; but a man who is level-headed enough to invent a divisible-chamber hive and then reject it will stand almost any thing; so I'm sure you'll take it in good part for me to find all the fault I choose.

It's true, I'm changing from the hives I've been using for years, and while I'm about it I'd like to have the best; but one objection to your hive is, that the change would be somewhat violent. My old hives have frames 18x9, and I can change to 17⅝x9⅛ with not such a great deal of trouble, for the two kinds of frames can be used together, after a fashion; but your frame is 13¾x8¾—no possibility of using your frames interchangeably. Of course, if there were enough to be gained by the change I ought to be willing to undergo that inconvenience.

The first thing that attracts my attention on looking at your hive is that it is square—14¼x14¼ inside measure; and I must confess that there's something a little prepossessing in that appearance; but while you were about it why didn't you make the real brood-space square, instead of the inside of the hive? for the real brood-space must be measured inside the end-bars, and that makes it 14¼x13⅜. To make your brood-space square you should lengthen your frames 1⅛ inches.

I don't believe I should like the method of spacing at fixed distances employed in your hive. Notches in the tin support maintain the fixed distance at the upper part, and in some respects this works well; but it entirely precludes the possibility of pushing a number of frames together along the rabbet as much as 2 inches. Much less do I like the spacing at the lower end. Staples driven into one end of the hive project so as to hold the lower ends apart, and this makes it so that a frame must be lifted some distance to move it, and you can't put a frame in its place without looking carefully to see that you get it in its right place. True, this spacing troubles at one end only, because the other end is free; but that, again, is objectionable; for I want my frames exactly spaced at all four corners. I find in the hive before me the space between end-bars at the free end varies from $\frac{6}{16}$ to $\frac{11}{16}$. That's a matter generally lost sight of—the proper spacing of the lower part of the frames—and the Hoffmans are at fault right there.

While putting the frames in the hive to find the bottom spacing, I thought I would test by the watch the rapidity of putting in frames. I found it took me a minute and a quarter to put the ten frames in place, and I feel pretty sure I could do it in much less than one-fourth the time if the frames were allowed to slide freely. Of course, you would do it more rapidly with your hive, having had practice.

I see your top-bars are plump $\frac{13}{16}$ in thickness, and I shouldn't want them any less. I don't see the wisdom of our Medina friends in taking a ⅞ stick and then whittling it down to a bead, leaving it only ⅝ thick. Perhaps they don't know any better. You and I do. But what makes you cut that ¼-inch slot out of your top-bars, so as to make a double top-bar? Is there any advantage in it? I like the ⅛ saw-kerf to receive one edge of the foundation in the top-bar, but I prefer it $\frac{5}{32}$, so the foundation will more readily enter.

The horizontal wires in your brood-frames are drawn so tight that they sing like the upper string of a banjo. According to the Roots and Dadants, I think, they should be comparatively loose. From what little experience I've had with horizontal wiring I stand against them with you. Perhaps the editor will give us some good reason for his slackness in wiring. I don't mean for slackness in general.

Now, I don't know but I've given nearly as many favorable as unfavorable points; but the summing-up of the whole matter is that, wherein there is a difference between your hive and the more common form of the Langstroth, that difference isn't any special improvement, and I don't want the trouble of a change without a certainty of a material improvement. We all have our preferences, however, and I think we can remain on speaking terms, even if we can't agree on hives.

Marengo, Ill.

[I am with you, doctor, exactly, in believing that we do not want a notched rabbet to keep the frames at fixed distances. It will hold a frame for moving; but, as you say, it precludes lateral movement, so highly prized by those of us who have used such frames as the Hoffman.

In regard to the thickness of top-bars, we made them ⅞ deep, but our customers just would *not* have them so; and in practice I found that ⅝ was practically as good as the ⅞. The latter may be a little more proof against burr-combs, but so "leetle" that it does not amount to any thing.

The ¼-inch slot in the top-bar, if I am correct, is for the purpose of a passageway during winter. An enamel cloth or quilt can be laid squarely on the frames, and yet the bees pass from one comb to another without going under and around. A man by the name of Aimes was one of the first, I believe, to suggest this space in a top-bar. Even if such bars are only ⅞ inch wide, they seem to go a long way toward preventing burr-combs. We tried quite a lot, and found them to do very well, but not so well as a top bar wider and at least ⅞ inch deep.

If horizontal wires are drawn taut, the foundation, according to our experience, will buckle every time unless a very heavy article is used, and that is too expensive. On the other hand, if the wire is left a little slack, but taut enough to take out all the sag, there will be no buckling.—ED.]

FRED ANDERSON pondered seriously over the letter he had received, and finally showed it to Secretary Hopson. The latter smiled as he read it, and remarked that Mr. Smith was a queer genius, and added: "*If* you should get acquainted with him, Mr. Anderson, you would find him a jolly companion. I dare say you wrote to him as you would to a man acquainted with all of the terms used in the practice of bee culture; and his knowledge of bees being limited he has answered according to his understanding, with a touch of his drollery. There are certainly bees on the Ghering ranch, and a large number. My advice is to follow the clew, as detectives say, and find out the true state of affairs."

Fred found that he could reach that portion of the Sacramento River by rail to Maxwell or Delevan, and then, by uncertain conveyances and much walking, might find the ranch. He could also, by taking more time, get up the river on one of the little steamers that ply at certain seasons of the year between Sacramento and Red Bluffs.

Accordingly, the next afternoon, after receiving the letter, Fred was on the steamer Valetta, booked for Ghering's Landing. In former years the Sacramento had been navigable for quite large steamers far above the capital city; but now, owing to the continued wash of debris from hydraulic mining up the many tributary streams, the channel would barely allow a boat drawing three feet of water to ascend as far as Red Bluffs; and even the large steamers find troublesome sandbars far below Sacramento.

The little Valetta, loaded with merchandise for the up-river towns, puffed its way carefully over sand-bars, around headlands, through tule bottoms, stopping now and then at landings as occasion required; and about noon, on the second day, she slowed up to the wharf before the lively town of Colusa.

Here a party of six miners came on board with their mining and camping paraphernalia, bound for the reported new diggings in Butte County. Their advent made quite a commotion on the Valetta. They had been "blowing in" their earnings in the various saloons of Colusa, and had evidently imbibed a noisy brand of spirits; and their most precious parcel of baggage was a gallon demijohn of whisky, or a compound that went by that name.

The Valetta had not proceeded far in the continuation of its trip when the demijohn was passed to all hands on the boat. Now, Fred Anderson was a true-blue temperance youth; and when the demijohn came to him he merely passed it along to the next man. The fact that he did not drink was not apparently noticed; and during the next hour several drinks were taken, and he passed the liquor as at first, or slipped to one side and avoided it. As a result of the several imbibings all hands on board except Fred began to be very jubilant. The red and blue shirted miners formed a circle on the forward deck, and began to shout, "On this deck we'll take our stand, we all belong to Gideon's band; here's my heart and here's my hand, we all belong to Gideon's band," etc. Their efforts at a shuffle, and a breakdown, were so ludicrous that Fred laughed heartily. This attracted the attention of a blear-eyed, vicious-appearing fellow, and, shuffling toward

"HOE 'ER DOWN, TENDERFOOT!"

Fred, he remarked, somewhat incoherently, "See—here—young man; may be ye—think ye—kin—dance better'n we kin." Then addressing his companions, he said: "Say, boys, le's make the milksop tenderfoot dance."

To this they all assented vociferously.

"That's a bully idea, Sam," said one. "Hurrah! tenderfoot dance is next on the program,"

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said another; and another shouted, "Good time to initiate the tenderfoot into Gideon's Band." Then they all shouted, "Here's my heart, and here's my hand; we all b'long to Gideon's Band."

"Come, tenderfoot, hustle round," said the leader.

Now, Fred had no objection to dancing; in fact, he had often taken part in private theatricals, and could execute a jig or a clog-dance fairly well; and, to avoid further trouble, he would indulge their whim and show them that the tenderfoot could dance. So, taking off his coat, he stepped into the open space on deck; and, to get into time, as it were, he spatted his hands on his knees, and then broke into a genuine plantation song, accompanied with a jig. The jig was also accompanied with shouts from the crowd, "Hoe 'er down, tenderfoot! get there, Gideon! We all b'long to Gideon's Band."

"HOW DO YOU DO, MR. PICKEREL?"

When Fred stepped out of the circle there were several approving smiles, nods, and winks, and all subsided for a moment into silence. Fred hoped this would satisfy them, and that now he would be let alone. But the leader of the gang had no notion of giving his victim rest, and shouted, "Hurray fur the tenderfoot, boys! he made a nimble dance, and beat us; but, boys, d'ye know he hasn't drank a drop of our whisky? he's a crank temperance tenderfoot. We've got to fill him up with whisky, and then we'll see whose dance is best. Hurray, now; pass round the crystal jug; let's all have a drink."

The demijohn soon came to Fred, and all eyes were upon him; but he stepped to one side and tried to expostulate and reason with the men; but whisky was in, and the human being and reason had stepped out, leaving nothing but the brute. Fred tried to get off with another jig; he knew that he was somewhere near his destination; and if he could divert them he might soon be landed and rid of them; but now, finding that he was really a temperance youth, they seemed the more determined to force him to drink.

The captain of the boat seemed to think that the drinking of a little whisky was a small matter, and said, "Why, young fellow, what's a drop of whisky? see here. I'll set ye an example;" and, amid the approving shouts of the crowd, he took the demijohn and a liberal drink from it.

While the captain was drinking, Fred felt that he was in an embarrassing situation. He had passed through many temptations that, for a time, had threatened to dethrone his temperance principles; but they had always been in social gatherings. The cup had been offered by so-called friends, and even by fair hands; but now the situation was different and desperate; for if he did not comply with the demands of the miners he plainly saw that they would proceed to personal violence. His very soul rebelled against being bullied into drinking the vile stuff; and as the entire situation flashed through his mind he decided upon a desperate remedy. As the leader of the gang determinedly approached him with the demijohn and an oath, Fred to all appearances, seemed to acquiesce to their demands.

"All right, gentlemen," he was upon the point of saying; but as that would be a ridiculous misnomer to the crowd before him, he had in mind to say men; but there was not a manly quality in the crowd. To call them brutes, he

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knew, would anger them; but to use the term would be an insult to the brute-creation; so he merely said, in a sarcastic tone, "Miners, why should a little whisky stand between our friendship?" and, taking the demijohn, he held it a moment in hand, while the crowd jeeringly shouted, "Hoorray for Gid!" "Hoorray for the tenderfoot!" Another sang, "Brave boys were they; they went at their country's call."

"Now, miners," said Fred, "when you see me swallow this whisky you may know that I have given up my temperance principles, but at the same time, I wish to use it in a way that will be a benefit to all;" and, raising the demijohn, he said, "Here's to the good old temperance cause, and to the confusion of drunkards."

With the latter words he hurled the demijohn toward an iron capstan, not ten feet away, where it was dashed into a thousand fragments, and the liquor went through the scuppers of the boat with a slush, and mingled with the waters of the river.

With the hurling of the demijohn, Fred sprang quickly upon the taffrail and made a vigorous leap. A moment later there was a splash, and a figure stuggling in the water. He had calculated his leap well. He noted that the boat would swing in shore at this place; and from where he went into the water it was only a few yards to shoal water.

Fred's sudden and unexpected movement disconcerted the drunken crowd; and before they could collect their befuzzled senses the boat had passed rapidly along, and the stern swung in on the river bend. The big rear paddle-wheel came so near to Fred that the water was dashed violently against him, and he was soon left in the rear of the boat.

The imprecations of the miners were loud, and their reckless anger vented itself in a few harmless shots from revolvers. They immediately realized that the temperance youth had worsted them. He had stood firmly by his temperance principles, and had put the contents of the demijohn where they would do no more harm.

Fred was a good swimmer, and even the impediments of clothing would not have troubled him; but the violent dash of water nearly stunned him, and his motions were somewhat wild while striving to keep his head above water. The steamer soon rounded the next bend, and was out of sight, apparently not caring whether their late passenger found the shore or the bottom of the river.

While Fred was manfully striving to gain the few feet now separating him from the shore, a young woman came running along the river-bank. In her hand she carried a long and slender fish-pole. When she had gained a vantage-point she thrust the pole toward Fred. He quickly grasped it; and, though the aid was so slight, a gentle pull enabled the young woman to land the largest specimen of river product she had ever angled for.

When Fred gained solid ground he was so far exhausted that he could not express even thanks to his deliverer; but from the moment when he first recognized her object he had an idea that an angel was rescuing him; for to his eyes he never saw a young lady so graceful, beautiful, and fair; and the fish-pole that had been thrust to his aid was a veritable cupid's dart, and had left a wound that would never heal.

When Fred secured a restful position he noted that his deliverer had kept up a running talk to herself in an undertone; and now she laughed (wildly he thought), and said, "How do you do, Mr. Pickerel? ha, ha! Pickerel for dinner. Pickerel from my sister the mermaid." Then she sang:

> The night is stormy and dark,
> My lover is on the sea;
> Let me to the night winds hark,
> And hear what they say to me.

Fred thought it the loveliest voice he had ever heard; and if he was indeed her lover, how appropriate! But again she shouted, "Well, Mr. Pickerel, do you feel like getting along to the palace? There, don't say any thing, Mr. Pickerel. You'll break the charm, and I'll fly away. In my palace we'll have dinner soon—mud-hen, turtle soup, or periwinkles—ha, ha! mud-hen!" she shouted. Then coming close to him she tried to be menacing, and said, "We'll eat Mr. Pickerel. See my teeth;" and a grimace followed that gave Fred a chill; but at the same time he thought the teeth the most beautiful he had ever seen. Her mood changed again suddenly, and she sang about her lover on the sea. Then seeing a reflection of her own lovely features in the water she talked to it as though it were a veritable fairy.

A painful thought evidently came to Fred; a troubled expression contracted the muscles of his face; he passed his hand across his forehead, and exclaimed, in a half-audible tone, "Great Heavens! she's crazy."

"Don't talk," she said, putting her shapely hand up deprecatingly; "you'd scare away my fairy sister."

There was now a sound of footsteps beyond the bushes, and a voice shouted, "Alfaretta!"

Fred's angel sprang up the river-bank as nimbly as a fairy, and answered the call with a "Hurrah, papa! I've caught Mr. Pickerel."

"Pickerel!" said the voice; and a middle-aged man of pleasing and professional appearance stepped through the bushes."

"Papa, here's Mr. Pickerel. I caught him; let's fry him for dinner. See my teeth, Mr. Pickerel;" and Fred saw that beautiful array of teeth again, and the accompanying grimace.

The man smiled sadly; and, seeing the plight Fred was in, he became kindly solicitous.

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Fred had recovered now so that he could arise and converse; and, giving his name by way of introduction, he briefly narrated the events of the past few hours, and the cause of his present saturated condition, and concluded with the remark that, but for the interposition of the young lady, he might have failed to reach the shore.

"Sure, sure," said the gentleman, several times during the rehearsal. At its conclusion he said, "My name is Clarence Buell. And now, Mr. Anderson, your clothing is in such a soaking condition you must come to the house with me and we will fix you out in dry clothing."

While walking along the river-bank, Mr. Buell expressed his admiration for the firm stand Fred had made against the drunken miners; "and, though you received a ducking, it is much better than to surrender your manhood. My sympathies are with any one who suffers through the evils of intemperance. You have observed the condition of my daughter. Her illness was caused by the drunkenness of a pilot on a steam-tug in San Pablo Bay. We lived in Oakland. Alfaretta was attending the University; but one day during vacation herself and a few gentleman and lady students were sailing on the bay when one of those little propellers came in collision with their boat and capsized it. Other boats were near, and all were rescued; but as they were about to rescue Alfaretta a floating spar struck her head and rendered her insensible. She was taken from the water, brought home, and remained in a stupor for many days. When she did regain consciousness her intellect seemed to be shattered, and has remained so until the present. We moved out here a few months ago, hoping the quietness and the freedom here enjoyed would result in an improvement; but the only change we can see is the better and more vigorous bodily health."

When they approached the house Mr. Buell led Fred into a bath-room, supplying him with necessary garments from his wardrobe until his own could be dried. As Mr. Buell was of aldermanic proportions, and Fred was slim, he presented a generally mussed-up appearance when presented to Mrs. Buell. The misfit caused smiles all around, and smiles and good cheer were what the house most needed; for the condition of the daughter rendered the home as sad as though there were crape on the door.

EGGS, AND THEIR POSITION IN THE CELL.

SOME OBSERVATIONS FROM HERR VOGEL AND OTHERS.

By Friedmann Greiner.

Mr. Editor:—My postal, addressed to Dr. Miller, although intended as a personal reply, has found its way into the columns of GLEANINGS (page 347). I am somewhat sorry that I wrote under the impulse of the moment; but I am glad the matter has by this means been brought out more prominently. I was not aware that the egg-transfer theory was generally accepted as a fact. Daniel Fleisher's observations are certainly very singular. Such a wholesale transferring stands without a parallel in all bee history. It is hard to see why his bees should have done so, or, in fact, what necessity there is for bees *ever* doing so. If bees possess this faculty, why do they not make use of it oftener? I have time and again given brood-combs, with eggs or brood in all stages, to queenless and broodless colonies; but I must confess that moving eggs or larvæ has, at the least, escaped my observation. Of course, a thousand testimonies in the negative lose all their power against a single one in the affirmative, and I am obliged to give up—but still I doubt.

In what Dr. Miller quotes from Cowan I fail to see wherein Cowan tries to convey the idea that a bee's egg is changed in position every 24 hours, perhaps as a hen might root over her eggs. If Cowan made his observations at intervals of 24 hours, then quite naturally he would state that he found the eggs at such and such positions at these times. Had he made his observations at shorter or longer intervals, his report might have been different; for, as I look at the matter, the change is a gradual one, and one without the direct interference of the bees. Speaking of this process, Vogel says, in *Bienenzeitung* of 1895, page 9, in substance:

"The egg, when just laid, stands at nearly right angles to the cell-bottom, with the lower pole cemented to this. It is thus held so it may be evenly subjected to the influence of the surrounding warmth. I have taken the pains to cut out eggs with some adhering wax (working with a very fine knife one sometimes succeeds without spoiling the egg). Such removed eggs, when again placed in other cells, were promptly removed; when placed in an incubator, never hatched, although the embryo was fully developed. Other eggs, when placed in the same incubator, but left as deposited by the queen, hatched out every time.

"The egg, after thirty hours of incubation, has declined toward the cell-bottom by 45 degrees. The nucleus, around which the formation of the embryo begins, is located nearer the upper pole of the egg, making this end the heavier, the power of gravitation causing the decline. After an elapse of another 30 hours the egg lies flat on the cell-bottom, but is still securely held by the cement until the embryo bursts the shell, when the workers remove all fragments."

Naples, N. Y., May 11.

[I have little to add in addition to what I have already said on page 347; but I wish to

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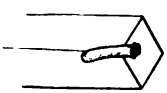
call attention to the fact that the observations made by Herr Vogel do not necessarily contradict the position taken by myself and others, that bees do transfer eggs from one comb to another under certain conditions and stress of circumstances.

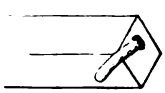
At the time of the sending of the article friend Greiner sent along two pages from the *Bienenzeitung*. Certain illustrations appearing therein I have had re-engraved for our own columns; and the matter directly pertaining to them is translated by our Mr. W. P. Root:]

Bees work in this respect exactly as do birds, which remove from their nests the fragments of their own eggshells. I took the pains to remove from the cells some eggs with a portion of adhering wax. Among other things for doing this, one may use a small fine penknife, without danger of losing the contents of the egg. I put such an egg into a cell and then put the surrounding foundation into a colony of bees; but the eggs were immediately pulled out of the cell and dropped down into the hive. I then put such an egg into an apparatus for the purpose of having it hatched artificially; but never did such an egg develop into a nymph. But, on the other hand, when the queen deposited the egg in a similar place, the larva was uniformly developed. Hence it is necessary, for the liberation of the embryo, that the egg be fastened at the lower end; for I found the embryo in such eggs, after some days, completely developed, but dead. These facts speak unmistakably against any transportation of eggs, by bees, from cell to cell. I simply bring this matter up because at present in foreign countries, long after the matter has been settled in Germany, the hue and cry has been taken up that bees really do, under some circumstances, transport eggs or larvæ from cell to cell or from frame to frame. To err is human. All reports as to the carrying of eggs and larvæ, emanating from foreign countries, are so incomplete, and hobble around so much on crutches, that their importance is of no consideration. . . . . .



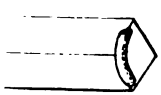
Egg just laid.

Fig. 1.



Egg after 30 hours of incubation.

Fig. 2.



Egg after 60 hours of incubation.

Fig. 3.

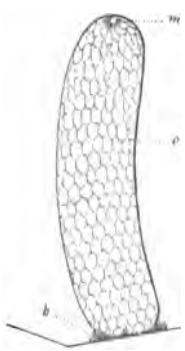


Fig. 4.

Appearance of a fresh-laid egg.

In Fig. 4 we have the exterior view of a bee's egg, greatly magnified. At *m* is the micropyle with its ray-like crown; at *o*, the netlike overskin, and at *b* the adhesive substance.

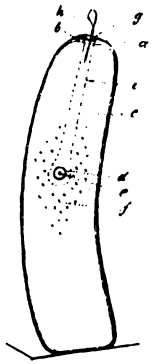


Fig. 5.

Section of egg, showing its interior.

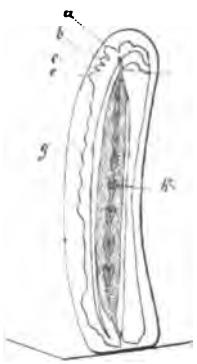


Fig. 6.

Egg on the third day, showing the embryo.

At Fig. 5 (a sectional view) we see the interior of the egg; *a* is the exterior leather skin; *b* the envelop of the yolk; *c* the protoplasm; *d* the so-called kernel, with *e* at the germinating-point; *f* are minute granules surrounding the germ-vesicle; *g* is the micropyle through which passes a sperm-thread, *h*, into the egg, and *i* is the sperm-duct.

Fig. 6 shows us the interior of an egg after a brooding of three days after laying. We see in the egg the already developed embryo, which is ready at any moment to burst and come forth as a larva. We see, besides, the rudimentary jaws *a*; the feelers at *b*; the upper lip at *c*; the lower lip at *e*; the antennæ at *f*; the stomach at *g*; and the nervous system of the embryo as a ventral mark at *h*, etc.

[I do not remember that in any work in English this matter of the position of eggs just at the time of being laid, and after being laid, has been touched upon; but I am quite inclined to accept the statements made. However, I do not propose to stop at this point; so I will go out into the apiary and take a look at some combs, and see what *our* bees have to say on the matter.

An hour later.—As I went out into the apiary I began wondering within myself why I had not noticed the phenomenon above mentioned. "Why, if true," I thought, "this will enable us to pick out a frame of freshly laid eggs, or a frame containing eggs just ready to hatch, just right for queen-rearing purposes. Our apiary is now rearing queens full blast."

"Mr. Spafford," said I, as I approached our apiarist, "show me a colony from which a queen was sold out yesterday—that is, a colony that has been queenless for 24 hours."

As he opened the hive I showed him the drawings above, and asked him if he had made similar observations. He had not noticed any particular inclination of the eggs at different ages. An examination of the frames showed that the eggs were inclining slightly, some standing parallel to the sides of the cells; but there was nothing very marked about the angle. We next turned to a hive from which the queen had been sold two days before. Here,

at least, I expected to find some eggs lying on their sides; but I could see no particular difference between eggs in this hive and the one previously examined. In some of the cells the eggs were straight out, and in others they were slightly inclined; but in none do I remember of seeing where the eggs were lying in the bottom of the cell, although I found hundreds of larvæ just hatched, seeming to have hardly broken the envelope or shell, as we might call it, off from around them. In the course of the afternoon Mr. Spafford examined other colonies, and he could not discover that the length of time during which the eggs had been laid had any particular effect upon the angle as regards the point of attachment.

Now, either our bees do very differently in this country, or else our friend Vogel, of the *Bienenzeitung*, has been careless in his observation. In the language of Herr Vogel himself, "To err is human." His statements, it seems to me, are the ones that "hobble around on crutches."

There are hundreds of queen-breeders who will be prepared to substantiate or disprove the point; and I shall be glad to hear briefly from quite a number. If some Yankee had put forth such a proposition I do not know but I should be inclined to drop it right here as all a hoax; but those German bee-keepers have the reputation of being very careful observers; and one needs to be a little careful before he disputes their statements upon his own *ipse dixit*. —ED.]

A HANDY HIVE-CARRIER.

By N. Young.

Mr. Root:—I have of late been rigging up a contrivance or device which I think can be used in many apiaries to good advantage in moving light loads about the apiary; and as the cost of it is so trifling I think almost any one can afford to give it a trial. Get a large-sized fence wire, say one or two hundred feet long. Tie one end to the corner of the honey-house or bee-cellar; perhaps a good solid post near by, well braced, would be better. Then tie the other end to something solid out in the bee-yard, or wherever you think you want it; then stretch it tight with a wire-stretcher. I make a car like that shown in the cut. Get a drygoods box, or make one large enough to receive a bee-hive. Knock off the sides, then take two pieces, 2x4, about 20 inches long. Nail them edgewise to the end of the box; then get two roller hinges and fasten on to each end of the box or car, and then hang it on the wire, and you have the outfit.

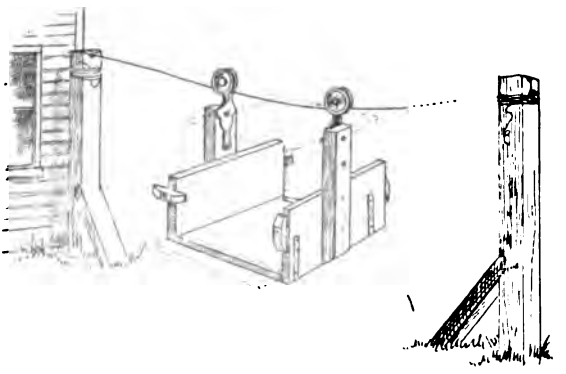
Ackley, Iowa.

[This I regard as a very simple and practical device, easy to make, and perfectly free from the jolt of wheel vehicles that run on the ground. It is very desirable, in carrying colonies of bees to and from the cellar, to do it in such a way that they shall not be jolted or disturbed; and this hive-carrier will do the business perfectly. Our engraver has failed to show the scantling set edgewise to the tray, as specified in the description. The object of this is to permit of the use of the ordinary door-pulleys, such as are used for sliding barn-doors. A few cents' worth of lumber and two door-pulleys, and 100 feet or so of stout wire, is all that is required. It is not necessary, as shown in the engraving, to have a post at the honey-house, because the latter is supposed to be rigid enough for that; and in place of the window shown, there should be a doorway.

If the taut wire runs centrally through the apiary it will be necessary to carry colonies only to the carrier; but if one wishes to carry out something a little more elaborately, he can have branch wires connecting honey-house in such a way as to intercept the whole apiary. Of course, the wire should be set up high enough to be above the head, but the carrier itself can hang down low enough so as to be the right height for loading and unloading.

Thousands of tons of coal are carried by systems similar to this. A cable runs into the mouth of a mine on a side hill, and the coal or ore is loaded on. A smaller cable hitched to the carrier draws it out and conveys it to a point directly over a railway track or river, where the load is dumped on to a car or into the hold of a boat, as the case may be.

In the device above, an attendant simply pushes the machine from one point to another. If most of the loads go toward the honey-house, the far end of the wire can be raised up a little so as to make it down grade. But I imagine some bee-keepers will not be content with this, but will arrange it so that the wire can be raised at *either* end—something as in done in large drygoods stores where they send the cash-boxes or bundle-carriers from one point to another.—ED.]



YOUNG'S HIVE-CARRIER.

"SWEEP SWARMS."

ANOTHER METHOD OF PREVENTING SWARMING: SHALLOW EXTRACTING-SUPERS; HOW TO SECURE MORE HONEY; HOW TO KEEP DOWN INCREASE.

By T. H. Kloer.

I have practiced the Elwood dequeening method from the time Mr. Elwood first published it, in the winter of 1888, I think, up to 1894. So far as prevention of swarming, and

producing of honey by colonies that are part of the time queenless, is concerned, I have had as good success as could be expected in seasons that were in the main poor. The finding of queens, and infallible destruction of queen-cells in the queenless colonies, have never offered any serious difficulties to me, and will be minutely described in the future. The most serious part of the method consisted in the re-introduction of the queens. How I lost hundreds of valuable queens, and how I finally overcame difficulties, I will also defer to some future article. I will give to-day a method of non-swarming, or, rather, forced swarming, which I practiced last summer, and which gave me better satisfaction than the Elwood method.

I have a large number of half-depth supers, designed for taking extracted honey, containing 10 frames 6 inches deep and 18 inches long. These have close-fitting end-bars, and stand on tin strips after the manner of the frames in Heddon's new hive. It is, however, not essential whether the frames are in that shape or not. A hanging frame will do as well. Indeed, the half-depth extracting supers you offer in your catalog may do very well, though I think they are shallower than my frames. Hanging frames should have the Hoffman end-bars, so that no time may be lost in spacing them.

Of the 10 frames, I provided 8 with half-inch foundation starters, and the two outside frames I converted into dummies by nailing thin wood over the sides. This I did because I considered 8 frames of 6-inch depth ample comb space for the purpose. By providing cheap loose bottom-boards and covers, these supers were converted into shallow brood-chambers to hive the forced swarms in.

When the proper time came, and the brood-chambers of my colonies were overrunning full of bees, I proceeded to make what in German bee-parlance is called "sweep-swarms" (Fegschwärme). My method of doing this is thus: I lift the colony from its stand and place it a little to one side. One of the shallow swarming-hives is placed on the old stand, and a good-sized piece of muslin spread in front of it. The old colony is then opened, frame by frame taken out, and the bees brushed with Coggshall bee-brushes on to the cloth. Shaking off at this time would not do, as there was too much honey in the combs that would shake out and drench the bees. If there are many colonies swept, it will be well to have two sweepers—one for each side of the comb. My 9-year-old boy helped me last year. If there is not much thin honey in the combs, most of the bees may be shaken off. We never looked for the queen, as we swept every bee from the combs, and then shook and brushed all the rest out of the hive. We never missed a queen. There should be an extra brood-chamber or box on hand to put the cleaned combs in, as it will not do to put them back into the same hive before all the combs are swept and the rest of the bees shaken out. We did not leave any bees to nurse the brood, for, even if some of the youngest larvæ should perish, the loss is not serious, as they would not develop in time to help gather that crop any way, and the sealed brood does not suffer. Of course, if there is danger of the weather turning cold this would not do; but when I did this last year, during the end of May and the first days of June, the heat ranged between 95 and 100 degrees in the shade.

After all the bees were swept out, the entrance of the old colony was turned backward, and the hive set a little backward and to one side of the swarm, to be gradually turned around again, a little every day, until side by side with the swarm. The bees entered the swarming-hive just like a swarm—were shaded with shade-boards, and in from 24 to 36 hours would have small pieces of comb started in some of the frames, and, generally, eggs in the cells. As quick as this was noted, on went the queen-excluding honey-board, and a case of sections filled with foundation, and one or more bait-combs were put on. The bees, having but little comb in the hive, would go into the sections with a vim, and put nearly all the honey they made into the sections. Where the old colony had been working in the sections before the operation was performed, we shook the bees out of the section-case and returned the sections to the mother colony until the swarm had started its combs and the queens had begun to lay, when they would be placed on the swarm. Where no queen-excluding honey-boards are used this is the only way to proceed, as the queen would surely occupy the sections if the cases were put on at the time of hiving. In a number of cases, however, I placed the sections, bees and all, directly above a queen-excluding honey-board on to shallow swarming-hive before the bees were swept off, and all went well. In no case was there any swarming-out.

These operations were performed in my out-yard of 54 colonies, located in the country, 4 miles from my home yard. I was somewhat hampered by several colonies swarming while I was busy at home, not thinking that any were ready to swarm. As the queens were all clipped, some of the swarms went into other hives, making immense colonies. To those I gave two of the shallow hives when I swept them off. As soon as they had settled down to business, and were working in the sections, I took away one of the hives and confined them to one, giving them plenty of section room. These double swarms made, of course, about as much again honey as the others.

After the close of the white-honey season I removed the sections and confined the swarms for a while to the shallow hive alone; and, al-

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though this rather crowded them, they stayed all right. The mother colonies had in the meantime all raised young queens; and on the 10th of July I proceeded to unite the swarms and mother colonies, as I did not desire any increase, and was in hopes that these rousing double colonies would make a good showing in the fall. This had been my plan from the very first.

Now, this uniting is a very interesting part of the program. In the beginning I had some misgivings as to how the queens would be treated. I therefore began cautiously, and with a few hives at a time. I would remove the old queen from the swarm, then hunt up the young one in the old brood-chamber, and put her under a small wire-cloth cage, leaving it to the bees to release her by gnawing away the comb from under the cage. I would then lift the swarm from the stand, place the mother colony on it, put a queen-excluding honey-board on the old brood-chamber, and the now queenless swarm on top. I soon saw, however, that the hunting and caging of queens took too much time, and started robbing, as no honey was coming in at the time. Besides this, it would necessitate another opening of the brood-chamber later on to remove the cages. So, after treating about 8 hives in this way I concluded to take what I considered a rather desperate chance. I would remove the old queen out of the swarm, then lift the swarming-hive from the stand, place the old brood-chamber on it, without caging the queen or even touching a comb, and at once put the swarm on top over a queen-excluder.

After treating a number of colonies this way, I waited a few days, and then examined them to see how the queens had been received. To my joy I found every queen in the hives, treated in the latter way, perfectly at home. There had been no quarreling whatever among the workers. Of the seven or eight queens that I had caged, however, there were several lost. The hunting-up and caging of the queens had evidently stirred up the bees too much, so that they killed the queens in a number of cases after releasing them from the cage. Thereafter I united all that remained, without caging the queens, and did not lose one out of all treated in that way. Moreover, in three hives I permitted the bees to retain their queens in both the old brood-chamber and swarming-hive on top, with only the queen-excluder between them, and all the bees using only the one entrance; and they stayed that way for several months. During that time they were hauled from the out-yard to the home yard, and I opened the hives a number of times and hunted up the queens. Late in the fall I remove one of the queens from each hive. It was, indeed, a pleasant surprise to me to see how easily those bees were united. In one case the mother colony had lost the queen they had reared; and as I thought they had a queen, I left them alone until they had developed laying workers, and had a lot of drone brood. I simply put the swarming-hive, containing the old queen, on top without queen-excluder, and the queen was received, and the laying workers disappeared at once.

As the brood hatched from the swarming-hives, I at first intended to shake out the bees, cut out the combs to make wax of them, and prepare the frames and shallow hives to repeat the brushing-off process again at the beginning of the fall honey-flow. The prospect, after the summer drouth, was so unpromising, however, that I did this only so as to try it on two colonies. Both filled the shallow hives with comb, in spite of the poor honey-flow, bnt did very little in the sections. This could not be expected. The old hives raised queens again, but did not gather enough for winter. With a little feeding, however, they wintered finely. The swarm was, of course, doubled back on to the old brood-chamber late in the fall, after having its queen removed; and after all the brood was hatched, the combs were removed and again cut out to render into wax. Of these two colonies, one is at present among the best in my yard, and the other a good average. This sweeping the bees twice in a season, and letting them build new combs which are designed for the rendering-pot, is a distinctive feature of the plan of management I shall hereafter pursue. It will give fine surplus honey, if there is any to be had, and a large crop of wax in connection with the production of comb honey. It does away with swarming, and increase of colonies is completely optional with the apiarist. I will yet state, that, for best success, each colony ought to have allotted to it two of those shallow swarming-hives—one to be used in spring, the other in fall. You *may* get along with one for both seasons, but it will crowd work too much.

Terre Haute, Ind.

[If I understand you correctly, you shake, or, rather, "sweep," *all* of the bees out of the parent colony in front of the new hive, and make them crawl in as they do in the case of a swarm; that this crawling-in satisfies their craving, somewhat, if they have any, for swarming, and that, as a consequence, they do not swarm.

I notice you say you shake all of the bees out of the hive, and then turn the parent hive around with its entrance in the opposite direction. Of course, this sacrifices the young unsealed brood; but in the mean time I should imagine that robbers might make trouble, or something might happen to the brood, until such a time as the bees already hatched out would be old enough to stand guard at the entrances. As these sweep swarms are made during a flow of honey, there probably would not be any very great trouble from robbers; but the loss of considerable young brood would amount to something. However, if you thereby keep down swarming, and at the same time control increase, perhaps the sacrifice of a little unsealed brood would be a small matter.—ED.]

THE NEW JARDINE BEE-ESCAPE.

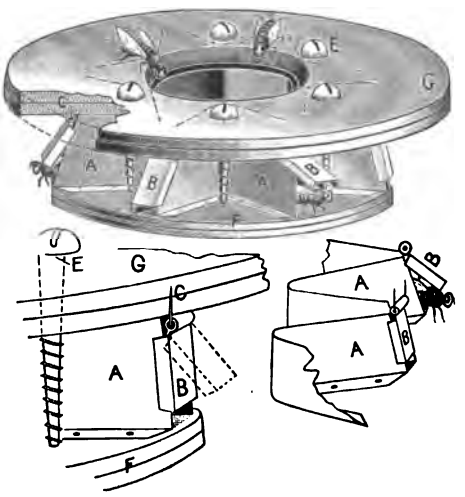
A BEE-ESCAPE WITH SIX OPENINGS.

By James Pearson.

During the past half-dozen years or more, all of our "up to date" bee-keepers have used some kind of bee-escape. All readers of GLEANINGS surely know the principle involved in all makes of escapes; viz., that of letting bees out through an opening which will not allow them to return. In this way the bees are coaxed out of the super-cases down into the brood-frames, through the doors or openings of the escape, by the simple law of nature which has been taught them by the divine Hand, to "keep near the leader" (in this case the queen).

Among the older and standard makes is the Porter escape. We do not wish to run down that or any other make for a minute, but, rather, bow in thanks and praise to the good work which they have done, and speak from the ever-clattering tongue of progress, "Well done, thou good and faithful servant."

In all lines of invention we find the first now taking the back seat, while the new inventors have founded their thoughts upon some solid principle of a by-gone inventor, and thus come before the public with new and superior devices of all sorts. As it is thus true in almost all lines of inventions, so is it very true in the line of bee-escapes. We give here a cut of the new "Jardine" escape.



At the first glance the experienced bee-keeper will see the fundamental principle of its superiority over the Porter; viz., do the same work quicker. The Porter and other standard makes are provided with but one opening, while this escape has six. Any child in primary arithmetic can understand very clearly that a larger number of bees can pass out through six doors much quicker than through one door of the same size. We put the escape in the center of a board bound with cleats, which holds the super above the brood-frames, about the same as is used with other escapes. Supposing you fix up six Porter escapes, you must have six of these boards, and six escapes, in order to get the separating capacity which we have with one of our Jardine escapes.

Our escape is made round. The top and bottom pieces are thin wood securely fastened together with six wood screws. The top piece is about five inches across, with a 1¼-inch hole in the center, which provides ample passage for the bees. The bottom is about four inches across. The partitions are made of tin, all pressed to a perfect shape, and very neatly nailed to the wood members of the device with very fine furniture brads. Each door is pressed to a perfect size, and hung to the top piece of wood by means of a little staple. Each door hangs just high enough from the bottom to allow a bee's head to go under.

When the bee is on the inside of the escape, and wishes to go out, it can easily raise the door, and pass through, after which the door at once closes, like a flood-gate in the river. The doors shut with flanges, passing on the outside of the partitions (or door-frame) in such a manner as not to allow any sticking the doors shut. The escape is put up in such a manner as to look very attractive, and, in fact, is attractive, or, at least, the idea, "time is worth money," is, and hence a machine that will save time will save money. The inventor, Mr. Jas. Jardine, of Ashland, Neb., is an old practical bee-keeper, and has used this escape for years, with gratifying results, which alone induced him to introduce it to the public. A year ago he sent out several escapes for trial to such persons as Dr. Mason, Hon. E. Whitcomb, Mrs. Heater, and others, and each escape brought back a very favorable testimonial letter after the season was over last fall. Of course, the cost will be a little more than the ordinary "single-file" escapes; but it will not cost nearly as much as the others in proportion to its capacity, besides the saving of so many escape-boards. All these things must be taken into consideration.

Germantown, Neb.

[Some time ago we received one of these escapes. They are very nicely made, and look as if they would work. We have had an engraving made, and present it to our readers. Perhaps I ought to state that the Porters claim that more than one exit for the escape of bees does not facilitate the emptying of the super, as one would naturally suppose. They tried escapes with one exit, and then with a number of exits; and after a long series of experiments they came to the conclusion that there was no gain by increasing the number of exits. On the contrary, something was lost by increasing the expense unnecessarily. These experiments were verified at the time by one or two others whose names I do not now recall.

The principle of this escape is not entirely new. It is very much like the flood-gate prin-

ciple that has been devised by others—see page 430 of GLEANINGS for 1891.

I should like very much, however, to receive reports from those who have tested this escape in comparison with the Porter—especially whether it rids the super any quicker because of its extra number of exits.—ED.]

TARE ON HONEY-PACKAGES.

LACK OF UNIFORMITY THROUGHOUT THE COUNTRY.

By W. A. H. Gilstrap.

Honey tare in a given style of package should be uniform throughout the country. The following will show that it is not. Our common package for extracted honey, you know, is a case containing two five-gallon cans, either with partition between cans (double case or without partition (single case). We have suffered severely, without knowing how much we were losing.

Below I give you the amount of tare charged by a few of the leading firms.

Nos. 1 and 3 I have given from noting their business transactions. The rest were learned by letters addressed to the parties named.

No. 1, Porter Bros. & Co., San Francisco, Cal., with many agencies in this State and the East, deduct 17 lbs. on single case and cans; 19 lbs. if a double case is used.

Nos. 2 and 3, Russ, Sanders & Co., and A. Pallies, both of San Francisco, deduct 18 lbs. from single cases.

No. 4, R. K. & J. C. Frisbee, 172 West Maple St., Denver, Col., "Deduct 9 lbs. for each extracted-honey case. Deal only in single cases; 24-lb. comb-honey cases, we deduct 4 lbs. each."

No. 5, E. E. Blake & Co., 57 Chatham St., Boston, Mass., "Tare of cases and cans with or without center-board." Recommends double cases.

No. 6, Wm. A. Selser, No. 10 Vine St., Philadelphia, "16 lbs. tare for the case and two cans seems to be the rule."

No. 7, C. C. Clemons & Co., 423 Walnut St., Kansas City, Mo., usual tare for cans and case, 15 lbs. If cases are made of hard wood it is more.

No. 8, Henry Schacht, 116 Davis St., San Francisco, Cal., "3 lbs. tare on each tin, and besides actual tare for the case."

No. 9, R. A. Burnett & Co., South Water St., Chicago, "The amount of tare deducted is what the case and cans actually weigh. In cars we get from San Diego district there are often four grades of tare, running from 14 to 19½ lbs. per case and cans."

No. 10, Hildreth Bros. & Segelken, 28-30, West Broadway, New York, "We figure 5 lbs. for the two cans, which is actual, and whatever the case weighs is added to it."

No. 11, Hamblin & Bearss, 514 Walnut St., Kansas City, Mo., "Strip five cases and put empty cans in them," and the weight of this is considered the average for the car.

No. 12, Batterson & Co., 167 Scott St., Buffalo, N. Y., handle extracted in "casks or 5-lb. cans, and buyer pays for extracted only; package free."

No. 13, S. T. Fish & Co., 189 South Water St., Chicago, "We always allow 2½ lbs. tare for the can. . . . We ascertain what the tare of the wooden cases is by weighing a few of them."

No. 14, Chas. F. Muth & Son, Cincinnati, O., "We take exact tare in every case, as near as it can be done. We pay for all the honey in the cans."

No. 15, Chas. McCulloch & Co., 393 Broadway, Albany, N. Y., "We know of no standard weight for the cases of either comb or extracted."

No. 16, Williams Bros., 80 Broadway, Cleveland, O., "For extracted honey we allow 2½ lbs. on each can;" actual weight on cases.

The replies below No. 4 are all agreed on actual tare for comb-honey cases, paying for honey and basswood sections containing same. Nos. 13 to 16 urge bee-keepers to weigh package and mark weight of same before filling with honey. Honest trade will not object to this plan; others should be let alone. I was robbed of over 900 lbs. of honey last year by excessive tare on what I sold for 15 tons.

Caruthers, Cal., May 1.

[There is too great a variety, as you say, in allowances made for tare. The only fair and correct way is to allow for actual tare whatever that is. In round numbers a square can weighs 2½ lbs.; and it is customary ro estimate that a pair of cans weighs 5 lbs. In round numbers, a box for holding two square cans, without partition, weighs about 15 lbs., although some of the boxes from basswood run slightly under this, some going as low as 12 lbs.

When we receive a carload of honey in square cans we weigh the whole package, and then weigh the box separately. As the weight of the cans is nearly invariable we get at the weight of the honey. It is a little more work to weigh the boxes one at a time; but, as you see, it is the only fair way of getting at the tare. It should be stated that, when boxes are made of hard wood, and have an inside partition, they will weigh some more; but it seems to me that every commission firm, if it wishes to hold its trade, should get at the *actual tare* by weighing the boxes one by one, all of them. It is too much guesswork to estimate a certain amount for boxes; and, moreover, the temptation is pretty strong to put the estimate high enough so that the buyer will be on the safe side. I do not see how we can have exact uniformity; but what we do need most of all is actual tare. Let the bee-keepers and commission men buy and sell honey at its actual weight.—ED.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

NURSE-BEES.

Question.—If field-bees make poor nurses, how about a colony that comes out in the spring queenless and broodless? If given choice brood, will they be prepared to care for it to the best advantage and rear a queen that will prove satisfactory? Or do you regard it as a makeshift when nothing else can be done?

Answer.—There is quite a difference between old field-bees and bees which come out of winter quarters, as regards their making good nurse-bees. The vitality, and different parts or offices performed by the bee, become exhausted, or change in accord with the amount of labor performed, not in accord with the number of days which go by; hence a bee which has seen five months of winter, where a colony has wintered to the best advantage, may be no older in reality than the same bee would be at from ten to fifteen days were the date of the season June or July. All know that bees which have been wintered over become good nurse-bees, while nearly all admit that a bee which has been in the field as a worker for two weeks is almost wholly incapacitated for such work; and, if forced to nurse the larvæ, does it as a "makeshift," as our correspondent puts it. I have found that a colony losing its queen soon after coming through the winter will rear a very fair queen, though I have never found them to be among the best; but in order to raise such a fair queen it seems necessary that the nurse-bees should be feeding some larval bees before they set about raising a queen. I have often taken a colony of queenless and broodless bees in the spring, and built them up in this way:

As soon as possible after spring opens, give them a frame of eggs and larvæ, and in eight or ten days open the hive and break off all queen-cells started, giving brood to them once a week if possible, till plenty of young bees hatch from the first brood given, when I give a frame of choice brood and allow them to raise a queen from the same. In this way I have succeeded in getting queens that would prove of value, and saved a colony which otherwise would have been lost. Had I allowed them to perfect a queen from the brood first given, she would have been a makeshift queen, and, in all probability, a drone-layer, as she would have been perfected long before there would have been any drones flying. I firmly hold this belief, coming from long experience along the queen-rearing line, that good queens can not be reared except where there are nurse-bees in the hive, feeding larvæ at the time they are required to rear queens. To force any bee, which is not in the habit of preparing chyme, to immediately prepare chyme for a larva intended for a queen, is out of the ordinary course of nature, and the result can be only an apology for the better article, or a "makeshift," as our questioner puts it. But here is a point I have never seen mentioned, viz., that, so far as my experience goes, the bees, when in the proper shape as to nurse bees, can rear a really *good prolific* queen from this makeshift queen, so that the colony will be a thriving one with a queen reared by supersedure from her brood. In fact, I have often found such queens to equal those reared from the very best of mothers, although I do not advise using such as mothers for a whole apiary. In this we see how a kind Providence has provided for the perpetuation of our pets even under the most adverse circumstances.

NON-INCREASE DESIRED.

Question.—Will you kindly answer in GLEANINGS this? I have ten colonies of bees which I run for comb honey in eight-frame L. hives. I have no extra hives for increase, and I do not wish to increase beyond the ten colonies. How shall I manage them so as to get the most honey in the sections, and yet never have more than the ten colonies?

Answer.—I very much doubt whether our questioner is on the right road to the best success from his bees, for there often come emergencies where it is almost a positive necessity to have a few extra hives on hand; for, to so manage bees that none of the ten original colonies shall ever cast a swarm, is something very few if any have attained to, when working for comb honey. Swarming is the result from a colony in its normal condition; and if we would have *no* swarms, the bees must be thwarted in their purpose by throwing the colony out of this normal condition. This is generally done by taking away the queen; for without a queen no swarms are likely to issue. This queen can be caged in one of the sections so that the bees can have access to her; and I would advise this instead of removing her entirely from the hive, where she is to be returned again; for the bees not only retain their relationship to her, but I think they will continue to work better in the sections when she is near them. Soon after the queen is removed from the brood-apartment, the bees will commence to construct queen-cells to supply her loss; and at the end of ten days the hive must be opened and all cells started broken off. If the queen is now left caged a week longer before liberating, the brood will be largely hatched out, and all desire for swarming given up, when she can be liberated with almost a certainty that she will be accepted all right, and no swarms issue from that hive until young bees are hatching plentifully again, if at all, that season. Or, if preferred, the queen can be destroyed, and all queen-cells destroyed at ten days, when a nearly mature

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queen-cell can be given in a few days more, which cell is to give the future mother of the colony. Either of these plans will work, if properly attended to; but, as I said at the start, I doubt whether any thing of the kind is the royal road toward the production of the best results in comb honey.

□Amalgamation or no amalgamation, it is really folly for us to divide up our money, time, and energies between two national organizations.—*The Bee-keepers' Review.*

Only 3 out of 24 respondents to *A. B. J.'s* question-box had a good word for keeping bees queenless during the honey harvest. The three were P. H. Elwood, J. A. Green, and E. France. —*Hasty in Review.*

Let me say to my good friend Merrill, of the *American Bee-keeper*, that it is not personal vanity that leads some of us bee-keeping editors to speak of the sickness in our families and of the food we are eating, but because we have suffered so severely, and, having found a way of escape, are anxious that others should know of the way.—*Editorial in May Review.*

Glad to see that the new-process foundation proves less liable to sag, in the trials so far, than the old kind. Even with pure wax, sagging has been a serious evil.

"Perfectly abominable." These are the words in which Ernest backs up Geo. F. Robbins as to the style in which some of us put our honey on the market. 'Spects we need more of the same kind of talk.—*Hasty, in Review.*

Mr. A. I. Root is, and has been for a good many years, a good deal of a preacher, if we may judge from his sermonettes in GLEANINGS. If he practices all he preaches—that is, takes all his own medicine—he must be a very busy man, and ought to be pretty healthy spiritually. Between good potatoes and better sermons, the readers of GLEANINGS ought to be well-kept in both body and soul.—*American Bee Journal.*

□Mr. J. B. Hall, of Woodstock, Ont., is known as Canada's comb honey chief. In 1883 he exhibited 22,000 pounds of honey at the Toronto Fair, and 11,000 pounds of it was comb honey in sections. Mr. H. produced and sold in one year $3000 worth of honey. Out of his honey crops he built a large two-story brick house, and banked enough money to carry him over all the poor honey seasons. Mr. Hall is very popular with all the bee-keepers, and, being such a successful specialist in bee-keeping, his opinions are always valued highly in bee-matters. After saying all this (which we learned through one of our good Canadian friends)—would you believe it?—this same J. B. Hall won't open his head except he's driven to it in a convention discussion! My! but he *can* talk! but on paper he's so very mum (for a Canadian), that it seems strange. He's a good man, though, and we liked him very much when we had the pleasure of meeting him at the Toronto convention last September.—*American Bee Journal.*

Lysol and its value in cases of foul brood appears to me in a different light after reading the article of F. L. Thompson on that subject. It seems that the feeding of lysol may cure foul brood; but if there is infected honey in the hive, the use of that honey at some future time will again bring in the disease. In other words, foul brood can never be permanently eradicated from a colony so long as its old combs of honey are left in the hive. The use of lysol in a region of country where there are colonies of bees infected with foul brood may be a good thing—it certainly would be if its use would prevent the contraction of the dread disease, and Mr. Thompson seems sure that it will. For this purpose I can see that the use of some drug might be valuable. I suppose the philosophy of the matter is that, if all of the honey brought into the hive in times of scarcity, at times when bees will rob, is tinctured with lysol, any germs of disease that are brought in will come in contact with the lysol and thereby be killed.—*Editorial in May Review.*

WHY BEES SWARM; A GOOD ANSWER.

George F. Robbins, *A. B. J.*, 225, jauntily says he knows why bees swarm; and he can tell us (e'enmost) how to prevent it. Let me see if I can't beat you at that, friend R. Bees swarm because there is a hole in their hive. Abolish the holes, and swarming is cured—I can warrant 'em. Perchance the Robbins remedy is not quite so illusory as mine; but it may fail sometimes, and mine will not. He takes away the *contents* of the hive, and leaves the hole—and the bees. The objections are that you have doubled your stock, and you may want to prevent that; you have a lot of hungry babies that must starve, as there are no nurses to feed them; and, you have a lot of sealed brood that may chill in a sudden cold spell of weather; and you may get the whole thing scooped by robbers. These combs can indeed be given to weak colonies, but only in a small way; and we want a scheme that covers the whole apiary. If he will take away the combs from several hives each day continuously, and put them into a big warm tenement hatchery, when the young bees are numerous ladle them a few quarts into each original hive—well, I think that's the direction from which morning is most likely to arise. Perhaps the man who works out the finished details of this may be canonized as a benefactor. I have never got around to begin the trial, although I have long had the scheme in mind. The outcome of such a hatchery is not increase of colonies, but a lot of nearly empty combs.—*Hasty in Review.*

INTRODUCING A QUEEN WHERE THERE ARE LAYING WORKERS.

I believe you and other bee-keepers claim that a queen can not be introduced where there is a laying worker. If you were here I could show you a case where we succeeded. The colony was queenless for a month or more after we first noticed it. We sent for a queen, and when we came to put her in we found quite a lot of eggs in drone-cells, which are now hatching. We put the queen in. She was in the cage for four days, and we let her out. She is now laying all right. A. BLUE.

Bladensburg, Ohio, May 15.

[You must have misunderstood us. It is true, it is somewhat risky, introducing a valuable

queen to a colony containing fertile or laying workers. One of the best ways of getting rid of such workers is to introduce a cheap fertile queen. If she is accepted, the trouble is overcome.

The A B C of Bee Culture has this to say: "If the fertile workers are discovered when they first make their appearance before you see any of the drone larvæ scattered about, they will often accept a queen-cell or fertile queen without difficulty." There is nothing implied in this that a fertile queen can not be introduced to such colonies.—ED.]

THE department of "Personal Mention," in the *American Bee Journal*, is an interesting feature of that periodical.

T. G. Newman and family are now in San Diego, Cal., as I learn from the *American Bee Journal*. Mr. Newman was sick on the way there, but is better now.

THE prospects for a honey crop, and a big one too, all over the country, were never better than this year. Even Dr. Miller (see the *American Bee Journal*) says, "Without stretching the truth a bit, the past eight or nine months have been the most promising for bee-keeping in this part of the country in my 35 years of experience." Clovers are sticking their heads out everywhere, and our bees are getting a little honey every day, although it is hardly time yet to expect the regular flow.

ONE of our subscribers desires to know how to make a filter for clarifying sorghum molasses. Some years ago somebody told how to make such a filter, for clearing up dark honey. If I remember correctly he used a keg or barrel containing a few inches of bone charcoal. The honey was run through this into another receptacle. At the time, I believe our subscriber reported the honey was made considerably lighter in color. If any of our readers can give us information on this matter of clarifying syrups and honey by means of such a filter, we should like to hear from them. Send along drawings or a photo, so that we may have the apparatus illustrated.

THE NORTH AMERICAN AT LINCOLN.

THE following note, just received from the secretary, Dr. Mason, will explain itself:

Upon conferring with each other, and with the Nebraska bee-keepers, the executive committee of the N. A. B. K. A. has decided that the next meeting of the Association shall be held at Lincoln, Neb. The time will be fixed as soon as it is definitely known about railroad rates. A. B. MASON, Sec.

Toledo, O., May 25.

WE are at present testing furniture-nails as frame-spacers, in lieu of widened ends *a la* Hoffman. They work very nicely, and by some may have the preference. But, all things considered, I should prefer the Hoffman. I do not, however, find the same objection to the furniture-nails that Dr. Miller does; viz., the crowding in of propolis around the rounding of the heads. The propolis does accumulate there, it is true; but I can't see that it does any harm—that is, in any way interferes with the free working of the frames.

PEOPLE WHO WILL NOT ANSWER LETTERS WHEN YOU HAVE HANDED OVER THE HARD CASH TO GET THEM OUT OF TROUBLE.

QUITE a few have written us, saying, "By all means publish the names and addresses of all persons who refuse to refund when the shipper advances cash to the express or railroad company to get their goods through and thus save them loss and delay." All such persons will have fair warning before their names are held up to public view. Dr. Miller, in his Straws, in this issue, mentions a case that is peculiarly provoking. Look here, old friend, A. I. R. does not want 120 per cent, nor any per cent at all; but he hereby gives notice that, if said person does not write you and apologize, we will hold him up to public gaze. If he does not read GLEANINGS you can call his attention to this paragraph. A. I. R.

THE SUGAR-HONEY QUESTION.

WHEN this subject came up in the *Bee-keepers' Review*, it will be remembered GLEANINGS entered a strong protest. While we did not for a moment doubt the honesty of purpose on the part of Mr. Hutchinson and of Mr. Hasty, we held that advocating the feeding of sugar syrup to produce sugar honey, even though for the avowed purpose of selling it for what it was, was ill-advised and unwise, because every one would not be conscientious in disposing of the product under its real name. Mr. Hutchinson, in deference to the opinions of other bee-journals, and that of the majority of his own readers, dropped the subject. I have been a little sorry at times to see different ones bear down on him, now that the question has been dropped in the columns of the *Review* and the other bee-journals. In reference to one of these, Mr. Hutchinson, replying to Bro. Holtermann, of the *Canadian Bee Journal*, says:

When the great majority of bee-keepers protested against the discussion of the subject, I deferred to their opinion, and promised that the advocacy of sugar-honey production should end in the *Review*, at least until there should be a change of public opinion on the subject. I have lived up to that promise. Even Bro. Holtermann has publicly commended me in his journal for the faithfulness with which I have kept my promise; and *now* to publicly condemn me for what *may* be my private opinion on the matter strikes me as unfair.

Discussion of this subject may have been foolish; and, if so, then those who joined in it must suffer for their folly; but don't get so far back into the Dark Ages as to expect us to recant, and say we don't believe what we do.

VERNON BURT, OR THE BEE-KEEPER WHO "GETS THERE" EVERY YEAR.

For some time back I have been contemplating introducing to you those of my bee-keeping friends with whom I have had most to do in a personal way—that is, those who live in our own county, and with whom I "talk bees" whenever they come to town. The first one is Mr. Vernon Burt, a bee-keeper who owns in the neighborhood of 250 colonies, three or four miles distant, and who has the distinction (due either to good luck or good management or both) of securing a crop of honey every year.

Two or three years ago, when I scoured the country far and near, hunting up successful bee-keepers, you will remember our head clerk of the shipping department one day told me

VERNON BURT.

that I was overlooking a *very* successful bee-keeper right under our nose. Said he, "This man always gets a crop of honey; buys piles of bee-supplies, and always pays *cash* down, and seems to have a plenty left after paying for the goods." This man was Vernon Burt.

As I have before explained to our readers, it did not take me long to find out more about him. He is a man who says little; and as for writing for the bee-journals, I do not suppose he could be hired to do so for love or money, although he is just brimming full with that best of all requirements for successful bee-keeping—experience coupled with good common sense and business tact.

He lives on the farm with his folks; and although he is within a year of forty he has not yet taken unto himself a wife. I am sorry for him and for the nice girl that—that—well, ought to have him.

Mr. Burt is an advocate of large double-walled hives; fixed frames after the style of the Hoffman; and winters solely outdoors, and always with success. He is not inclined to jump into new things hastily; but whenever a novelty has real merit he is sure to adopt it. He practices clipping wings, and believes that he can secure more honey by letting the bees have their own way in swarming once rather than by trying to forestall them. How he manages during swarming-time I have already explained.

Yesterday, May 26, I called at his home yard for the first time this season. I was much surprised at the increased number of colonies in that one location; indeed, I believe he has more bees in one yard than any other apiarist in the State. Originally the apiary was confined to the orchard; but now it has grown so large it runs away out into the open field. It is always neatly kept, and the grass and weeds are kept down. I believe I have before explained that his lawn-mower is a flock of sheep let loose at night. If there is any thing that will keep grass down close it is sheep.

Near the extracting-house was one of those large Boardman solar wax-extractors. This he regards as one of the almost indispensable adjuncts to a well-regulated apiary. Every bit of old comb. refuse wax of any sort, or cappings, are thrown into this machine and turned into a first quality of wax. A large part of such wax, he thinks, might otherwise be wasted but for the *convenience* of this machine, which is always ready, working for nothing and boarding itself.

After we had looked through the yard, we each, as is our custom, seated ourselves on a couple of large chaff hives, under one of those large apple-trees.

"Well," said I, "what are the prospects this year? I see white clover out around us, and Dr. Miller is unusually hopeful. How is it with you?"

"Been too dry with us," said he. "White clover appears in little patches here and there, but only in little patches. What little honey my bees are now getting is from red clover."

"Well, are your prospects any better this year than last?"

"Just about the same; but," he continued, "I never saw more basswood buds than this year. I am expecting a good crop of honey from that source."

"But do you think those buds are going to 'give down'?" said I.

"I never knew them to fail when they looked as they do now."

"How is your out-yard coming on?"

"Doing nicely."

With this I mounted my bicycle, with the promise that I would call again at the first opportunity.

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OUR HOMES.

Honor thy father and thy mother, that thy days may be long upon the land which the Lord thy God giveth thee.

Remember the sabbath day, to keep it holy.—Ex. 20:12, 8.

I suppose every reader of GLEANINGS could give me, without hesitation, the full name of both his father and mother; but if I should also ask for his mother's full name before she was married, I am afraid some of you would hesitate and think a little before answering; then if I should ask for the full names of your grandfathers and grandmothers there would be still more perplexity; and I find there are quite a few children nowadays who can not tell me very much about their grandfather and their grandmother; and when we come to call for facts in regard to the *great*-grandfathers and *great*-grandmothers, the average American boy or girl is obliged to admit that very little is known about them. If we attempt to go back still further, most of us, even members of large families, are obliged to admit at once that we know very little in regard to our ancestors, especially on the mother's side. The fashion of naming boys after their father makes it, of course, a little easier to follow along in the line of people of the same name; but from the fact that a girl has her father's name until she is married, and no longer, soon obliterates nearly all chance of tracing the genealogy on the mother's side. But there comes a time in the life of almost every person when he begins to be curious as to the stock of humanity from which he descended. Now, do not call this idle and unprofitable questioning. We should all, to a certain extent, have family pride. But young people rarely think much about that until they get to be, say, of an age when they may be parents themselves. Then there is usually much inquiry. The inquiring mind of a child frequently turns in this direction; and since the age of photography almost every household contains the pictures of the whole family, away back to the time when the daguerreotype was first invented. For instance, I have my father's and mother's pictures, taken when they were between thirty and forty years of age; and there is somewhere lying around, may be up in some old garret, a picture of your humble servant, made by the daguerreotype process when he was just about fifteen years old. I am, however, afraid that nobody could tell exactly how old he was then, nor at what date the picture was taken. If, as I surmise, he was about fifteen, it was taken in 1855, or about then. I remember the children coming from school, greatly excited, saying that Mr. So and So had a machine that you could look into and see yourself, as in a looking-glass; and that, by a beautiful new discovery, he made the picture *stay* in the looking-glass after you had gone away, and that the picture could be kept for your relations to look at. I believe the school-children were invited in to see the process. A piece of silver-plated copper was buffed and polished until it was really a silver looking-glass, and you could see yourself in this little square silvered copper plate; and, wonder of wonders! after his different manipulations with the various chemicals, the picture actually *did* stay. Then the artist put it into a little book-like case lined with velvet; and, oh dear me! wasn't it a treasure to be carried about and exhibited! Of course, the good-looking girls soon had their pictures taken; and some boys who were not so good-looking nor as well-mannered as they might have been got possession of these pictures, and showed them around on the sly, when they had no business with them at all. What a lively business the picture business was at that time! and how the photographers did take in the dollars! The whole thing has now, however, notwithstanding the wonderful modern improvements, become so commonplace that a good many artists complain that they can not "make a living." Well, the picture business did a great deal toward helping us all to keep in mind our ancestors, and to remember the different ones who, perhaps, were called away early in life.

By the way, almost all my life I have been curious to know when they commenced calling a boy after his father. When did people start out calling every boy Smith, Brown, or Jones, just because that was his father's surname? You need not tell me that people *always* did that way, for in that case we should all be Adams—not only in disposition but in name. You have all heard about the astronomer who said that there ought to be a planet in the solar system further than any then known, and that, for certain reasons, it ought to be in such a place; and when the telescope was directed to that point, the planet Neptune was discovered. At the time I went through Mammoth Cave, and saw the bats and the bat guano I said, "Look here, friends, an expert antiquarian ought to be able to tell us from the accumulation of bat guano pretty nearly how many years bats have been roosting up overhead as they do now." Well, I am not an antiquarian, and I do not know much about this business of ancestry; but I have sort o' concluded all to myself that people have been named after their fathers as they are now—well, let's say less than a thousand years. The New Testament indicates pretty nearly that their fashion was a different one from what we have now; but when it was that a boy was given a name not hitched on to his father's name at all I can not tell. If any reader of GLEANINGS can suggest to me some book or encyclopedia where this thing is explained I should be very much obliged. One more thought along this line:

With the present state of affairs my impression is we shall have to cease, before very long, calling boys after their father. For instance, *Root* is not a very common name. I now remember when there were very few Roots anywhere except near relations; but now the Roots are becoming quite common here in Medina. I have a brother in Tempe, Ariz., whose initials are J. H. R.; and until recently our agent over here at the station wrote his name J. H. Root. He writes it so still, for that matter, but he is not living in Medina now. If any of you have two or more people in the same town whose given name and surname are exactly alike, trouble comes; but when the middle initial is also exactly the same, there is no end of confusion if both parties are at the same postoffice. And this reminds me that we have just lost almost $100 worth of comb honey. It was shipped to H. Meyer, St. Louis, Mo. Well, now, Henry Meyer, commission merchant, St. Louis, Mo., is a straight man—reliable and responsible; but his namesake rented a little room, put in a table and chair, paid $2.50 rent in advance, and then had honey, and nobody knows what else, sent in to him, taking advantage of the good man's reputation; and now Mr. H. Meyer, of 210 Olive St., can not be found.

Perhaps I had better explain a little more in regard to the above transaction. An inquiry came to us in regard to comb honey. The letter was signed "H. Meyer, 210 Olive St., St. Louis, Mo." On reference to Dun's and Bradstreet's Commercial Reports, one of the clerks found

there were four H. Meyers in St. Louis; and as the letter-head right before us was printed "H. Meyer, Commission Merchant," the clerk looking the matter up took it for granted that this letter was from one of the four who were in the commission business. He was accordingly given very close figures on what he wanted, and the honey was shipped, to be paid for in ten days. As he did not respond in ten days, investigations were made, with the result given above. A letter from the chief of police of St. Louis tells us the man is an out-and-out swindler.

I wish to take a little space right here for something that to most of you will be only a personal matter. There are some of our readers, however, who are more or less connected with the Roots, and have several times asked me what I knew about them.

THE ROOT FAMILY AND ANCESTORS.

Briefly: The first records we have been able to hunt up are found in Maresfield, Sussex Co., England, and they go back as far as 1576. At that time the name was spelled Rootes. In the year 1635, at Salem, Mass., records are found of three or more brothers by the name of Roote. In 1640 John Roote came over from Badby, England, a little village in Northamptonshire, and located in Farmington, Ct. The Pilgrims came over in 1620—twenty years before, as you will notice. But John Roote and wife were of Puritan stock, and were members of a Congregational church in Badby, England. They had eight children. John, the oldest, was born in 1642, and he was also father of eight children. Caleb, one of those eight, had a family of five children. One of the five was named Samuel, and he was the father of a family of seven. Enos, one of these latter seven, had a family of nine. The names of these nine were, Moses, Samuel, Elizabeth, Levia, Chauncey, Elias, Enos Prindle, Benjamin, and Martha Delia. The second child, Samuel, was my grandfather, and he lived in Waterbury, Ct., where my father, Samuel H. Root, was born in 1810. My grandfather was the father of nine children: Martha Julia, Philomela, Hannah Emmeline, Samuel Homer (my father), Eliza Rebecca, Sally Maria, Benjamin Edison, Mary, and Albert. Of this family of nine, all are now gone except the first, Julia, and she is now 92 years old. All the husbands and wives of these children are gone except my mother, who is now 84 years old, and is living here in Medina. In 1870 it was estimated that there were 100,000 Roots and their descendants, all coming from the stock given above. How many hundred thousand (if the fashion for large families still continues) ought there to be by this time—1896? Those who want further information may find it in the book called "The Root Genealogy," published by R. C. Root, Anthony & Co., 62 Liberty St., New York. This book was published in 1870, and contains 533 pages.

From the "Root Genealogy" I make a few extracts as follows in regard to the prevailing traits of the Roots: First, they are, as a rule, a devotional people. We find a large number of deacons, etc., all along down the line, and some ministers of the gospel. They have been called Puritans of the straitest sect; but for all that they are patriotic, many of them losing their lives in the Revolutionary War and in the late rebellion. As a rule they are a good-sized people, many of them quite athletic; but the greater part of them do not bear shutting up indoors for a very long period. They are an agricultural people; and even if they get away from the farm and garden, and get into business in the cities, sooner or later they gravitate naturally back to the farm, or out among the fruit. Now, I have not space to make my list of good qualities much longer; but I find in the book a sentence, and a part of it in italics, that made me smile broadly. It is this: "The whole line have been characterized for shrewdness, and noted especially for a strong *anti-humbugativeness*." Many of them are remarkable as mathematicians and musicians.

Well, about a year ago the matter was talked over of having a reunion of the Roots and Rootlets at Silver Lake, Summit Co., O. Let me explain that, for many years past (it seems to me I have heard it stated as twenty or more), Mr. R. H. Looge has managed a picnic ground year after year so much to the satisfaction of the public generally, especially that part of the public who love righteousness and hate iniquity, that it seems to be a favorite rendezvous for all good people. The whole ground is fenced off, and no one can get in without paying a small admittance-fee—say five cents for every person, but nothing for teams that bring the visitors. By this means friend Lodge keeps out roughs and objectionable people. Nobody gets inside of the inclosure without passing the eye of the gate-keeper. Now, right over said gate is a large bulletin-board or sign; and in great black letters the fact is proclaimed to everybody that, under no circumstances, are these grounds *opened on Sunday*. In fact, at every point of ingress and egress this fact is made knewn, so that no one need go there and be disappointed because he did not know the regulations.

This establishment has been successfully managed, as I have told you, for twenty years or more, while various picnic-grounds, open week days and Sundays, have started up and gone down into bankruptcy and oblivion again and again as the years have passed. Let me just briefly relate the history of one of these.

The Glen, at Cuyahoga Falls, was established where the river makes a cut a hundred feet or more through the rocks, and forms one of the most beautiful pieces of natural scenery to be found in Ohio or any other State. A few years ago a man secured possession of this property, fitted up the natural caverns, springs, rural bridges, etc., until it was one of the finest things to be found anywhere, and crowds of people flocked to it. While it was at its height of popularity I asked the question of a relative who lives near there, "Has this man backbone and sense enough to resist the tremendous pressure that will be brought to bear on him to open this place on Sunday, and then, as a natural sequence, bring in intoxicating liquors?"

My cousin replied:

"They are already bringing their forces to bear on him to have it open on Sunday; but I guess he is all solid, for he is a very earnest Methodist, and a good man."

Time passed, and I heard the Glen was getting to be a terribly bad place. During one of my wheel-rides over that way I asked my cousin again in regard to it. He replied something like this:

"Why, Amos, they have persuaded this man, somehow or other, that his beautiful grounds should be open on Sunday to let people who have not time during the week have a little chance for recreation, rest, outdoor air, etc. The place was finally made a Sunday resort. Then the same arguments were brought to bear to induce him to sell liquor to people who would be very careful not to abuse (?) the use of it; and—"

He looked at me with a smile as much as to say that I might guess the outcome. I replied:

"So this poor man lost his religion, lost his money, lost his temperance principles, and is

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perhaps now wrecked, spiritually and financially, and every other way."

He replied that I had got it about right.

Now, friends, there are pleasure-resorts all about us. They are near your home as well as near mine. A good many of us have our Sunday-school picnics at such places. There is a beautiful lake about five miles south of Medina; and our Sunday-school, for many years, has held its annual picnic at this place; but I believe the general decision of late is that the children hear more bad talk during the day of the Sunday-school picnic than perhaps during all the rest of the year, as a consequence of being thrown more or less in contact with the roughs, gamblers, and swindlers who congregate around that lake; and one good brother said he feared the children learned more iniquity on that *one* day in the year than all the teachers and officers of the Sunday-school could weed out during all the rest of the days of the year.

When the electric cars first made Silver Lake a point, something over a year ago, I am told that the managers of the electric line alone offered a thousand dollars to friend Lodge if he would lay aside his "puritanical notions" and open up his place on Sunday. I do not know what he said, but I am told it amounted to this: "Get thee behind me, Satan." "What shall it profit a man if he gain the whole world and lose his own soul?" and friend Lodge stands to day—that is, if I am correctly informed — as firm as a rock, unlike the man at the Glen I have spoken of; and he verifies the promise of scripture, "Whatsoever he doeth shall prosper."

I wish I could tell you all about Silver Lake grounds. The bottom of the little piece of water is clear sand; in fact, it makes me think of the Florida lakes; and the water is pure and soft. Friend Lodge has an ice-house of his own, and stores up the most beautiful ice every winter. Then he has in summer time a big windmill to pump soft spring water into the reservoir that sends it all over the ground. At various points are buried coils of pipe; and on these coils a great lump of ice is placed every morning; so wherever you open a hydrant to draw water to drink, if it is not ice-cold it is as cold as you ought to drink, and the supply is unlimited. Of course, it is the most beautiful bathing-ground that can be imagined, and the prices for bathing-suits are very reasonable. A little steamer constantly makes its trip around the lake, and Sunday-school children can spend the whole long day on these grounds, and not hear an oath nor any objectionable talk. The institution is managed by friend Lodge and his children. He keeps some bees and takes GLEANINGS, and makes a garden; and on that beautiful sandy soil he raises the most luscious melons and other fruits and vegetables for his guests that are numbered every year by the thousands. Some people think it is strange for a man's prosperity to hinge on such a very simple matter as remembering the sabbath day to keep it holy.

Well, my accustomed space is pretty nearly all used up; but I wish to say to you that the Roots and Rootlets had just the pleasantest sort of time at our picnic and reunion on the 8th of last August, and at least some of them are thinking about when we shall hold the next one. As we wanted to be all by ourselves friend Lodge very kindly and graciously gave us his front dooryard, furnishing us chairs, tables, gasoline-stoves to heat the water, and every thing else, and all this without a cent of charge except the five cents apiece for going inside of the grounds. Everybody pays this nickel; then the whole family of Lodges turn in and make it just as pleasant for the crowd of "lodgers" as can well be imagined.

As memory goes back to that beautiful summer day when we held our picnic, I think of many things. The dear brother who asked God's blessing before we sat down to our repast* (Deacon Sackett, of Tallmadge) has been called to his home above; but the stories and reminiscences in regard to grandfather Root, who brought his family of girls, with an ox team, from away down in Connecticut, when he settled and made his home in Tallmadge, Summit Co., O., was well worth listening to, I assure you. Aunt Julia told us how the family of girls made the wild woods ring with songs and merriment on that long trip through the woods that took them nearly a month. Every Saturday night they camped, and rested until Monday morning, *remembering the sabbath day to keep it holy* as well as they could under the circumstances; and when they reached the State of Ohio (that new land away off in the far west, you know), the families who kept the sabbath made better progress, came through in better health and spirits—domestic animals and all—yes, a great *deal* better—than those who were so eager to get through that they pushed ahead on Sunday just the same as any other day.

Now, dear readers, some of you may think it strange that such a little thing as the way a man regards the sabbath may make a difference, not only in his financial affairs, but spiritual, physical, and every other way. Look about you and see if it is not true that the really good men and women of this world of ours *are* in favor of keeping God's day holy.

AN "AMERICAN" TRAMP.

Last Sunday morning, while we were at breakfast, somebody rapped at the back door. Of course, it was a tramp. They have stopped troubling us week days becase they know they will have to work before they can get any thing to eat. But for some time lately they have been coming around on Sunday morning, and they always promise to work it out next day, which they never do. This fellow was dressed well from his head to his boots. He made a very humble request for something to eat. I told him to come around Monday morning and I would give him work.

"But," said he, "how am I to subsist today?"

"Look here, my friend; your suit of clothes, from boots to hat, is good enough for you to go to church. Now go right across to that hotel yonder, and leave that good coat of yours as

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*I remember with painful distinctness that my part of said "repast" was pure hot water and chopped beefsteak. May the Lord be praised, however, that, at the present time, I can eat what I please, like other folks. Let me explain, however, that what I "please" is quite different from what pleased me a year ago. *Now* my choice for daily food is mostly lean meat and zwieback. I do not quite understand it, but now I do not want coffee at all. It used to be one of my greatest privations to have my coffee cut off. A teaspoonful of malted milk in a cup of hot water is more refreshing and delicious to me than all the coffee in the world. Once more, strange to tell, I do not care very much for *fruits*. It is now strawberry time, and I have not eaten a pint altogether this year. What few I do eat I prefer cooked. Now, it is an exceedingly pleasant thing to me to feel that my natural craving is for the things that digest easily, and not for something that will do me harm. I eat a little fruit almost every day for breakfast and dinner, but none for supper, and I am not only well but thankful. Let me say once more, may God be praised for health, and a healthy appetite for wholesome food.

security for what you need to-day. It is warm weather, and you will be very comfortable without it; then come to me to-morrow morning and I will give you work enough to pay your bill and get back your coat."

You ought to have seen the sudden change from mock humility to defiant scorn and contempt. Said he:

"I would not work for you for ten dollars a day."

I replied, "Why, don't do it then; certainly not, if you feel that way about it."

At this stage of proceedings the still small voice whispered to me, as if often does, "Least said, soonest mended;" and as my temper was rising too, I turned to go away and leave him. But he was not to be shut down in that way. He called after me:

"Go and hire your Chinamen and niggers. *I* am too much of an *American* to be bossed around by such as you."

I still made no reply, but that seemed to anger him still more. He turned and followed me, and I did not know but he was coming clear into the dining room. Shaking his fist, he said:

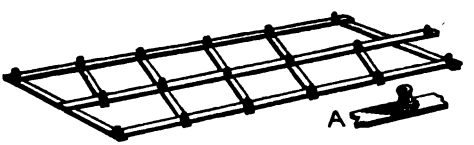
"It is none of your *business* where I got my clothes;" and with a string of imprecations he started off toward the barn. Mrs. Root suggested that perhaps it would be better to feed them rather than to make them angry and cause them to burn our buildings, destroy our property, etc. But I protest. If we as a people and as a nation continue to submit to this thing, and feed men who loudly *boast* that they do not have to work, and *won't* work, and feed them because we are *afraid* to do otherwise, we shall very soon receive our just punishment for rewarding and even offering a premium for such behavior. If this is not *anarchy*, then I do not know what anarchy is. "Too much of an *American*," forsooth! His speech betrayed his foreign origin. What sort of idea do these people have of America, anyway? "Too much of an American" to earn his daily bread by the sweat of his face! By the way, this man unconsciously paid a compliment to the Chinese and colored people. I never saw or heard of a Chinese tramp; and I do not remember now that I ever saw a full blooded *African* who was a tramp. I need not tell you what nation or nations they are that are pouring this sort of humanity on to our shores to intimidate our hard-working women, our railroad companies, our police, and a certain class of sickly sentimental people who think everybody ought to be *fed*, even if they refuse to do a stroke of work for their daily bread.

By the way, what does it mean to be an American? A neighbor of mine suggested that it meant a class of people whose children could not be *hired* to work on a farm. They would ride bicycles, and go to college, and work at some things, but not at farming. I assured him that, in that case, there was a good time coming for the farmers; for when everybody else deserts the farm, there will be excellent prices for farm products for those who stay by it and "hold the fort."

EARLY POTATOES UNDER GLASS.

We have this year made a splendid success of the matter. I do not know whether to ascribe it to the peculiar adaptability of the Thoroughbred potato, or whether it was the extra energy and enthusiasm I gave to the matter because of the value of the potatoes. To look back over the work it seems to be one of the simplest things in the world to raise large crops right in the winter time. For a good many years back we have not succeeded in getting potatoes much earlier by starting the plants under glass where they were planted right outdoors. One great reason for failure, however, has been that we put them outdoors too soon, and did not give them sufficient covering when the frost came. I notice that quite a few agricultural papers have also suggested that there is not much gained by having potato-plants to set out instead of planting whole potatoes. We intended to use quite a little cloth for protection; but as it turned out, our cloth sheets were never used at all except when we used them to spread over the glass—glass sashes alone not being sufficient. The season has certainly been very peculiar.

During the fore part of April the potatoes were considerably injured by frost going through the glass and freezing the potato-tops, especially where they were against the glass. A cloth sheet spread over the sashes at such a time was a very great help. Well, within one week after these severe freezes the weather turned around, and we have not had a frost since, sufficient to require covering the potatoes with cloth, sash, or any thing else. My impression is, that hot-beds or cold-frames are much better for potatoes than a greenhouse. When the weather is so that the plants will bear it, they seem to do much better by having the glass stripped right off entirely. We cut the potatoes to one eye, and plant them exactly one foot apart. The marking-out is done with the same machine we use for marking for planting strawberries under glass. See cut below.



SPACING-TOOL FOR PLANTING POTATOES UNDER GLASS.

Of course, the ground in the plant-beds is made very rich with plenty of old well-rotted stable manure. Then it is put through a sieve, to make it fine, soft, and loose. The potatoes have plenty of water whether it rains or not; and it is just fun to see them "get up and climb" with such treatment. I do not know how the sub-irrigation is going to answer for potatoes. We have not tried it. My impression is, you would have to be careful about too much moisture. Potatoes will not stand wet feet nor steady soggy wet. They need lots of water when they are growing with a rank growth; but it must not be standing water. Mrs. Root suggested that my largest bed, where the potato-tops stood three feet high, with stalks as thick as your thumb, would be all vines and no potatoes. I told her that was not the fashion with the new Thoroughbred. And, oh my! you ought to see the beautiful potatoes that are making the ground crack and burst open down near where the stalk started out from the one-eye cutting. The Thoroughbred is adapted to being cut to one eye, without question. Where they stand out in the field by the acre the stand is perfectly regular and even, although some of the pieces near the blossom end of the potato were cut exceedingly small to get one eye on a piece. As friends Swinson and Parker intimate, however, the bugs go for them tremendously. I do not think, however, that it is any thing par-

ticularly against the potato that bugs are so fond of them. The bugs will pick out the Hubbard squash every time, in preference to a pumpkin, summer squash, or any thing inferior to the genuine Hubbards.

PACKING OR COMPACTING THE SOIL IN THE POTATO-FIELD.

Terry says on page 13 of the A B C of Potato Culture, in regard to fitting the ground, "I wish I could harrow it with a balloon so horses need not tramp it." He says again, on page 15, in speaking of the soil, "It *must not* be packed as wheat likes to have it." Now, I have been more and more coming to the same conclusion myself. I want the ground just as soft and mellow as it can be before the potatoes are planted, and then I want just as little tramping over it as possible after planting. I presume my boys think me notional because I tell them to go *around* the potato-fields instead of tramping through them; and especially do I wish to avoid *useless* tramping. A boy who is wanting some excuse to run here and there all through the fields and garden I do not want on the premises at all.

A good deal has been said about cultivating potatoes often; but I have sometimes thought that the tramping of a heavy horse between the rows did almost as much harm as the cultivating did good, especially when it is the least bit damp. And here is where the Breed's weeder comes in. The horse does not need to go in every row; and neither does the man who follows it. The great point is to choose your time just after a rain, when the lumps on the surface will easily pulverize and mash up, and then put off all your other work and get the Breed's weeder through all your stuff as soon as possible.

A few days ago they said they had their work all done, and were just about loading the weeder on the wagon to put it back into the barn. I stopped them, and told them to try it among some peas that were a foot high. The man declared that it would tear them all to pieces, and pull them out by the roots. We started in; and although it did not pull them up it tumbled them about so much, and knocked them down flat at such a rate, that I stopped when half way through the field, telling him we would wait a couple of days and see how much damage it did. This morning the peas that were torn up so bad look just as well as the others. I did not find a dead or dying vine in the patch, and the ground was all beautifully pulverized all in through and between the stalks. Our new ten-cent potato-book emphasizes this point particularly, of growing the tubers in *soft, fine, rich soil.*

MAY 25, 1896.

Along the fore part of April we thought the season was going to be more backward than usual; and this illustrates how little anybody can tell about the weather, even two weeks ahead. The month of May has been more forward than any other May I now remember. We had our first ripe strawberries about a week ago; and to-day, May 25, we are almost in the height of the season. We received 20 cts. a quart for them till last Saturday, when they came down to 16, and we are selling this morning at 16. Other strawberries, mind you, were selling at 14 and 16, while at the same time we were getting 20; but ours were placed before our customers only an hour or two after they were picked. We give heaping pint baskets for a dime. Most people preferred these to the more or less mashed-up berries that had been kept a day or two, besides being shipped long distances. Our berries ripened here in Medina so soon after those in Marietta, a little further south, that we had only one shipment this season. One might think selling so many berries grown under glass would have a tendency to bring prices down; but it was quite the contrary. After having quite a trade in berries grown under glass, at 10 cts. a pint, we kept right on for several days selling those from the fields at the same price.

We made our first picking of Alaska peas to-day, May 25, and it involves a little lesson. During the latter part of March I was uneasy because no peas had been planted; but it was freezing so hard nights that it did not hardly seem worth while. Another thing, the ground was too wet—even that so thoroughly underdrained. We finally found a piece on the edge of a steep bank that was dry enough to plow, and the peas were put in, even though it was almost too wet to take a horse on to it. I felt at the time that perhaps I should have got along faster had I waited until the ground was dryer. Well, we got the piece in, and now for the result:

After that it remained rainy so that it was at least two weeks before we could find a bit of ground anywhere that could be plowed. As soon as we could we got in some more peas. Those put in in March are the ones we are picking to-day, and there is a very fine crop of them—much better than those put in two weeks later. These will bring 10 cts. a quart readily because nobody else has a pea anywhere near maturity. Why, ours were up and in full bloom before the greater part of the gardeners around here had any planted.

Now, by making special provision in the fall I might have gotten in a very much larger patch—say half an acre, and sold peas two weeks before anybody else had a pea fit for picking. The difference between 5 cts. a quart and 10 cts. a quart will pay well for ridging the ground up in the fall so that the top of the ridge will be dry enough to get your peas in along in March, or in many seasons even in February. And, by the way, the severe freezing nights and thawing days during the fore part of April did not hurt these peas a particle. They just did nicely; and they were so early that they were so much ahead of the weeds they covered the ground almost before a weed had started. By fixing a piece of ground in the fall, expressly for early peas in the spring, I think it is a comparatively easy matter to have plenty of them during the first of strawbery-picking. Those who raise crops, and have them mature just at the time when everybody else piles their stuff into market, will have to sell at a very low price; but the one who is a week or ten days ahead can set his own figures. I tell you, it is pleasant to have a nice crop of something of this kind when there is no competition whatever.

Mrs. Root suggests that it is wicked to *make* people pay 40 cts. a quart for strawberries, and other things at like prices. The same thing has been suggested to me by others; but look here a minute. It is the wealthiest people in our town who pay these high prices. Mr. S. told me that a great part of our strawberries grown under glass were taken by one family in our town. They took them every morning, often taking all we picked. When I told Mrs. Root who the purchasers were she said, "Oh! yes, that is all right; *they* can well afford it." Well, now, these people who are well-to-do are really paying our small boys for growing plants under glass, for handling sashes when the weather changes, etc. The small boys — or many of them—have widowed mothers. Both the boys and their mothers are greatly pleased

to have me give them work, and teach them to "make plants grow." Now, which is better—for these well-to-do people to pay enough so the boys can be kept at work learning high-pressure gardening, or give the money outright to the poor widows? Why, everybody says at once, "By all means, give the children work by purchasing the stuff they produce." Almost every winter, the organization of King's Daughters is obliged to give poor families assistance; and quite a few times they have come to me asking if I could not furnish employment to some member of said family, and thus relieve them from the burden of "carrying" such a family through the winter. I need not tell you how much better the effect is on society generally, to set people at work instead of giving money outright. Very likely there are a *few* people who are in debt, and who pay 20 cts. a pint for strawberries when they are rare and high-priced; but this is the exception and by no means the rule.

CHINESE GARDEN-SEEDS.

One of the small boys in my Sunday-school class—that is, he was a small boy some fifteen or twenty years ago, when I first commenced Sunday-school work (some of the readers of GLEANINGS will perhaps remember about it)—well, this small boy, when he grew up, went to China as a missionary—or, at least, he holds an important government office connected with the missionary work. Of course, we have kept up more or less correspondence. He wanted some of our garden-seeds, and, as a consequence, astonished the Chinese and everybody else by the new vegetables, melons, etc. Well, he has just come back on a visit, and by way of returning the compliment he has brought me a great lot of Chinese seeds. In fact, there are so many of them I have concluded to give them away to the readers of GLEANINGS.

In the first place, there is a kind of lettuce, and I find written on the envelope *Hsengtsai*. Then there is a cucumber called *Shoo kwa*. Then there is a summer squash for pies, called *Wo kuo;* still another pie squash called *Htu hu lu*. This last grows up six inches or a foot high, then it must be laid down and covered with earth. The Chinamen have sent us a rude drawing, telling us how to manage. Last, but not least, there is a red muskmelon—red outside, red inside, with red seeds. Now, anybody who wants them can have a few seeds for trial by sending us 5 cts. to pay for wrapping and postage. There is quite a lot of the cabbage and red muskmelon, but there is not very much of the other things; but you shall have them as long as they last. Now, you need not ask me any more questions about them, for this is all I know about them, until we have tested them on our own grounds.

THE NEW CRAIG; HOW IT BEHAVES IN FLORIDA.

Mr. Root:—A few days ago I mailed you 1 lb. of Maule's Thoroughbred potato, as requested when you sent me some seed potatoes. Owing to the severe drouth we have had, and are still having, the potato crop, and many others, have been a failure. Those I sent you were the largest I got from the pound of seed you sent me. I have perhaps 3 or 4 lbs. of quite small ones left. The Sir William did about the same, or perhaps a little better. The Craig was quite a surprise in the way of maintaining a good color right through the drouth, while Maule's, Sir William, the Blue Victor, and what is known here as the Early Red (all planted at the same time, in the same patch and with the same fertilizer) turned yellow, and died prematurely. The Craigs are still a very fair color; but as we have had comparatively no rain for eight or nine weeks, if we even should get one now soon, I fear it will be too late.

Orlando, Fla., May 21. B. B. ELSE.

The above verifies our own experience and that of almost every one who has ever made a report on the Craig. It is the best potato to maintain its vigor and untiring thrifty energy right through a severe drouth of any thing in the whole line of potatoes. We have tried it on our creek bottom, on uplands, and on poor ground; and it seems to be proof against blight, bugs, and drouth, and almost every thing else. At present we have some growing in the greenhouse in a locality where they have not had a drop of water for many weeks; and the great strong thrifty stalks and foliage look as if the potato did not even know it had been misused at all. Let me explain that I sent friend E. a pound of Thoroughbreds in order to have them tested in Florida, asking him to return me as many before planting-time up here. Those he sends are veritable Thoroughbreds, but are of small size. They evidently can not stand the drouth as well as the New Craigs. They are, however, of better quality, and very much earlier. The New Craig is also the best potato to keep in the spring, without sprouting, of any thing we know of. At this date, May 25, New Craigs that stood right close to the windows in our cellars, where they got light and warm air more than any other, have no sprouts longer than, say, ¼ inch; and the great smooth potatoes are comparatively solid and firm.

Horlick's

Malted Milk

For Invalids.

It is pure rich milk and an extract of malted grain combined and evaporated to dryness. It makes one of the most pleasant, invigorating, and nutritious foods imaginable.

Endorsed by physicians everywhere for invalids, aged people, and for those suffering from nervous prostration, dyspepsia, or digestive troubles of any kind—in fact, wherever a highly nutritious and at the same time easily digested food is required.

It makes an excellent table drink in place of tea, coffee, or cocoa, being far more healthful and nutritious.

Prepared by simply dissolving in hot or cold water, or it may be eaten dry.

Correspondence solicited, and samples free.

Horlick's Food Co.,

Racine, Wis.

Please mention this paper.

WANTED.—To exchange or sell a twenty-inch pony planer.
THE GEO. RALL MFG. CO., Galesville, Wis.

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Special Notices in the Line of Gardening, etc.

By A. I. Root.

Spurgeon, the great preacher, said. "Economy is half the battle of life." Those who study the book "Domestic Economy" are pretty well equipped for the "battle of life." Price $1.00; but we send it postpaid from this office for 50 cts.

We are to-day, May 29, selling new cabbage, summer squashes, cauliflower, American Pearl onions (2½ inches in diameter), green peas, strawberries, etc., and are getting good prices for every one of them. The limbs of the basswood-trees are just bending with their loads of *buds*. When it comes to blossoms, if the blossoms should be full of honey I do not know but some of the limbs will break down with their burdens. Surely this spring, at least, our land promises to be a land flowing with milk and honey.

THE EARLY PEABODY RED YAM.

By a slip of the tongue, or perhaps of the pencil, in our last issue, page 403, I called these *yellow* Peabody instead of *red*. T. B. Parker says it is the earliest sweet potato; and for quality—at least, judging from the samples he sent me to try—I should say it is second to none. See our latest prices for plants. Per 100, 25 cts.; if wanted by mail, 25 cts. more for postage; but we think it very much better to have all vegetable-plants sent by express, so the tops can be out and have the air.

SEED POTATOES GIVEN AWAY.

At the present date, May 27, we have given away to our subscribers more than 500 bushels of potatoes, and there are a little more than 500 yet to be given away. Until further notice we will present a full barrel of 11 pecks to everybody who sends us $1.00 for GLEANINGS, no matter whether you pay up what you are owing, or pay for the future, or whether you pay for somebody else to whom you wish to send it. A whole barrel of potatoes thrown in with every dollar we receive for the journal, of the following varieties:

We have remaining of the State of Maine, 50 bushels; Beauty of Hebron, 20; Snowflake, 6; Lee's Favorite, 6; Monroe Seedling, 74; Freeman, 140; the new Craig seconds, 45. The above are all $1.00 a barrel, and you can put it this way if you choose: Everybody who pays us $1.00 for a barrel of the above seed potatoes can have GLEANINGS for one year, and it will be sent anywhere you direct.

Now, besides the above kinds, we have of first-quality Craigs, *carefully selected*, 150 bushels. The price of these is $2.00 a barrel; and we will send half a barrel to everybody who pays $1.00 for GLEANINGS; or if you buy a whole barrel we will send GLEANINGS to you for two years.

We have also still remaining small lots of the following high-priced varieties: White Bliss Triumph, second crop, 1¼ bushels; price $2.50 per bushel. Burpee's Extra Early, 2 bushels; price $1.00 per bushel. Everett's Six Weeks, ½ bushel; $1.00 per bushel. Since we have sold out of Manum's Enormous, there have been so many calls and so much disappointment that I finally ordered another barrel, which we expect every day. Therefore you can have these also at $2.00 a bushel. You can have the four above kinds, $1.00 worth, at the prices given, for every dollar you send us for GLEANINGS. Of course, at this season of the year many of the potatoes, with the exception of the new Craig, are more or less sprouted; but in most localities a very good crop can be secured by planting at any time in the month of June; and of late we have learned how to get very good crops of early potatoes planted from the first to the middle of July—that is, average seasons. All that are not taken will be planted, probably, by the first of July, after turning under our strawberries after fruiting. We are entirely out of seconds, except Lee's Favorite and the new Craig, already mentioned. The Lee's Favorite seconds we will sell at 50 cts. a barrel, or two barrels to every one who sends $1.00 for GLEANINGS. There are left about 18 bushels of Lee's Favorite seconds.

In regard to the above potatoes for table use, the Freeman is in excellent condition, and stands at the head so far as quality is concerned. I carried over to Mrs. Root a bushel of Snowflakes, thinking that they might be better than the Freeman; but after trying them two or three times she asked me to have them carried back to the cellar and bring her a bushel of the Freeman. The Monroe Seedlings are also in excellent order for table use, as they were grown, as you may remember, from potatoes planted last year the day after the Fourth of July.

Last, but not least, we will send by mail postpaid 1 lb. of Maule's Early Thoroughbred potatoes (new crop) to every one who sends us $1.00 for GLEANINGS. Special prices for larger quantities on application. The new crop is partly dug, and we are succeeding nicely in getting them to sprout so as to be planted again out in the fields. These can be planted any time this month, or even in July.

The subscriber must pay transportation charges on potatoes; and if by mail (except the Thoroughbreds), be sure to include money to pay the postage.

Better name several kinds in making order, as we may be sold out of the one you select.

EXTRACTED HONEY.

We have a good supply of choice extracted honey, which we desire to close out, and should like to hear from those interested.

CREAM SECTIONS.

We still have a good supply of cream sections of the following width: 4¼-in. sq.; 1⅞ open top and bottom; also open four sides; 1⅜, open top and bottom; 1⅞, open four sides; also a good supply of 1½-in., No. 1 white, open two and four sides, all of which are offered at $2.00 per 1000; 5000 for $8.00; 10,000, $15.00.

BUSINESS AT THIS DATE.

We are having all we can do to keep orders filled with reasonable promptness. The season is favorable, and prospects bright in many localities, and trade is good with our branches and dealers as well as here. We have loaded the fourth car for this season to Denver, Col., for Bartelds & Co.; also the second car to Walter S. Pouder, Indianapolis, Ind.; the third car for Jos. Nysewander, Des Moines, Iowa, and the third car to St. Paul, Minn., and are loading the third car for Chicago as we go to press.

KIND WORDS FROM OUR CUSTOMERS.

OUR SEEDS.

We planted them the same day they arrived, and it was no time until they were up, and now they look nice. S. L. MEDLIN.

Pace, Tenn., April 29.

The hives I ordered of you came to-day, the 27th, and I will say I am very much pleased. I wonder how you can do so much first-class work for so little money. Surely I will speak a good word for you.

N. Weare, N. H., Apr. 27. JOHN A. WOODBURY.

The American Board of Commissioners for Foreign Missions acknowledges the receipt of forty-one dollars from GLEANINGS IN BEE CULTURE, by the A. I. Root Co., Medina, O., for Armenian relief.

Boston, Mass., May 21. FRANK H. WIGGIN, *Assistant Treasurer.*

The barrel of New Queen potatoes you sent me in rebate on the barrel of Craig seedlings came through all right and in fine condition, just right to plant. Thanks, also, for the Little Giant spray-pump. I have tried it, and am well pleased with it. It will do the work nicely, and it is so handy. I can work with it where I can't very well get the barrel-pump.

Danvers, Ill., April 30. J. W. LANE.

NICEST LOT OF HIVES AND FRAMES.

The missing package of hives arrived o.k. I must say that they are the nicest lot of hives and frames

I ever saw. Out of 100 hives shipped by rail and boat several hundred miles, there was not any of them damaged, with the exception of the rabbet being broken off one end piece. My extractor came through in fine shape; also the uncapping-can. Your way of packing is as near perfect as it is possible to get. When in need of goods I shall certainly order from you. C. A. SWEENEY.
Leota, Miss., April 18.

6 times 1 are 6.

Hence the new **Jardine Bee Escape** is as good as six ordinary escapes, because it has 6 doors. We want every bee-keeper in America, or elsewhere, to write at once for our descriptive circulars of this rare novelty of value.

JAMES PEARSON, Introducer,
Germantown, Neb.

James Jardine, Patentee, Ashland, Neb.

The Edison Phonographic News

tells where and how you can procure, cheaply,
A PHONOGRAPH, or
A KINETOSCOPE,
The great money-earning wonders. Sample copy, 10 cents.
THE OHIO PHONOGRAPH CO., Cleveland, O.
Please mention this paper

J. W. K. SHAW & CO.

Will send queens that are carefully reared from their superior strain of Italians at the following prices:
Tested queens, 80c each; $9.00 per doz. Untested queens, 60c each, $6.00 per doz.
Orders filled by return mail, and satisfaction guaranteed.

Loreauville, Louisiana.

ORIGINAL BINGHAM SMOKERS and HONEY-KNIVES,
Best and Cheapest on Earth.
The Doctor, ¼ inch larger than any on the market, 3¼-inch stove, per mail, $1.50.
Conqueror, 3-inch stove, by mail, $1.10.
Large, 2½-inch stove, by mail, $1.00.
Plain, 2-inch stove, by mail, 70c.
Little Wonder, 2-in. stove, weighs 10 ounces, by mail, 60c.
Bingham & Hetherington Honey-knife, 80c.
T. F. BINGHAM, Farwell, Mich.

For Sale.

40 COLONIES OF BEES,
at $1.50 per Colony.
J. W. BLACKWELL, Warrenton, Va.

Control Your Swarms, Requeen, Etc.

Send 25 c for samples of West's Patent Spiral wire Queen-cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-escape, with circular explaining. Twelve Cell-protectors, 60c; 100, $3. 12 cages, $1.; 100, $5, by mail. Circular free. Address **N. D. WEST, Middleburgh, Scho. Co., N. Y.**
Sold by all the leading supply-dealers.

Black and Hybrid Queens For Sale.

One dozen good hybrid queens, 25c each. Can go by return mail. Safe delivery guaranteed.
P. J. THOMAS, Fredonia, Kan.

Here is Your Chance

--TO GET--
UNTESTED ITALIAN QUEENS AT 50 CENTS EACH!
These queens are reared from finest imported mothers, and care is taken to produce the very best. Safe arrival and satisfaction guaranteed. No disease.
L. H. ROBEY, Worthington, W. Va.

FULL Colonies of Italian Bees for $4.00.
For particulars see larger ad. on page 406 this paper. Tested queens after June 10th, 75 cents each, 2 for $1.25
Address T. H. KLOER, 426 Willow St., Terre Haute, Ind.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 50 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange an automatic gauge lathe, and a broom-handle lathe, for an automatic improved shingle-machine, or a circular saw-mill. W. S. AMMON, Reading, Pa.

WANTED.—To exchange safety bicycles, and an Odell typewriter, for honey, beeswax, or gasoline or kerosene engine. J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—500 L. frames, drawn combs. Will exchange bicycle or money. Describe. Address W. LA MAR COGGSHALL, West Groton, N. Y.

WANTED.—On account of wife's health, will trade our fine home and one of the best equipped apiaries in the State, for similar property in lower altitude. This is a fine location.
R. C. AIKIN, Loveland, Colo.

WANTED.—To exchange 6 100 gallon best heavy tin honey-tanks, with best Schobel patent honey-faucet, well banded, for honey or beeswax.
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

WANTED.—To buy an automatic shingle-machine (improved), second-hand.
W. S. AMMON, Reading, Pa.

WANTED.—To exchange Japanese buckwheat at 75c bush., and comb foundation, for beeswax.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange untested Italian queens and two-frame nuclei for watch or offers.
W. J. FOREHAND, Ft. Deposit, Ala.

WANTED.—One car of finest-quality sage comb and extracted honey, and several thousand pounds of orange blossom honey. We pay cash on arrival for all goods, and furnish the best of references. Bee-keepers will send samples and give prices.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

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VOL. XXIV. JUNE 15, 1896. NO. 12

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA, OHIO.

MURRAY-HEISS CLEVELAND O

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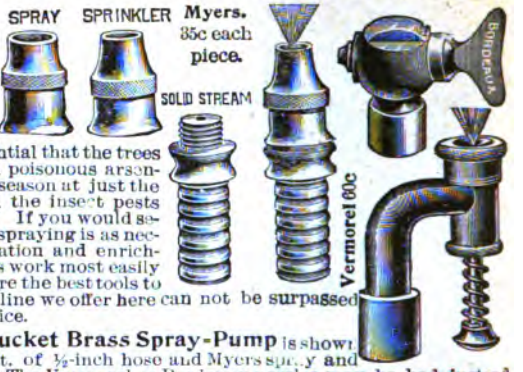

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8-foot pipe extension as shown in Fig. 6, included with Figs. 1, 2, 3, 30c extra.

Moherman. Price $2.40

Fig. 5. Fountain Sprayer. $3.00. Fig. 3.

Fig. 2. **Knapsack Spray Pump.** Price $5.40.

Fig. 6. Price $3.00.

Knapsack Spray-Pump. This is shown in Fig. 2. The can is of galvanized iron, and holds 5 gallons. The pump is the same kind as the bucket pump, but is made shorter. It may be entirely removed from the can, and used as a bucket pump if desired. It is the only knapsack having an agitator to keep the solution stirred. The bucket pumps also have this feature. The lever handle may be charged to use with either hand, and one of the straps having a snap may be passed across the top, and hooked, forming a bail to carry the can by. As regularly sent out, it includes Bordeaux nozzle on 2 feet of pipe extension and 5 feet of ½-inch hose; can be furnished with copper tank at $3.60 extra. Vermorel nozzle substituted at same price, if so ordered.

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FOUNTAIN KNAPSACK SPRAY PUMP.

Fig. 4. **Fountain Sprayer.** Price $3.00

The A. I. Root Co., Medina, O.

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
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STRAY STRAWS FROM DR. C. C. MILLER.

THE BLOSSOMS of the strawberries is what the bees worked on, Ernest.

AMALGAMATION. "It is noticeable that a real, valid, reasonable objection has not yet appeared."—*Review.* [See last Straw.—ED.]

FOR FOUL BROOD, F. L. Thomson believes in feeding lysol outdoors, not as a cure, but as a preventive.—*Review.*

ALFALFA. H. Rauchfuss "thinks 8 or 10 acres to the colony, instead of 1½, are necessary for their best work."—*Review.*

ONE ADVANTAGE in favor of bottom as well as top starters, both in sections and brood-frames, is that the shorter top starter will sag less.

"COMB FOUNDATION is only an amusing plaything, without any practical value." That's what no less an authority than Berlepsch said years ago. Many a good thing is at first condemned.

I'LL BE GLAD to see the Union and the North American both knocked in the head if some better thing takes their place. But, please don't do the knocking till sure you have the better thing.

CRIMSON CLOVER, according to reports in Gravenhorst's *Bienenzeitung*, is, in some places, of value both as forage and as a honey-plant, while in other places it is of little account for either purpose.

THE FIRST CASE you have of laying workers, try giving them a "pulled queen," or a virgin queen just emerged; may fail next trial, but has succeeded so far with me. [We have, and it is generally successful.—ED.]

IS IT BEST to extract sections in any case? Those half filled can be sold at a reduced price, and the bees can extract those with less honey in them. [Sections of drawn comb are good capital, according to B. Taylor.—ED.]

HASTY, in *Review*, says I bear down pretty hard in *A. B. J.* on the idea of old bees playing, and asks whether old bees don't play on a warm day in February. Look again, my dear brother. "During harvest time" is what I said.

WHY IS IT that the Rietsche foundation-press is so popular across the water, thousands of presses being in use, whereas I have heard of but one in this country, and that was condemned?—[They are too slow in operation for Americans.—ED.]

SNAKE-CHARMERS in India and elsewhere handle poisonous snakes with no harm. Prof. T. L. Frazer explains that they become immune against the poison by small and repeated doses, just as a bee-keeper becomes immune against bee-stings.

SECTIONS MADE GREEN by too much sulphur, C. Davenport remedies by soaking in water. If that loosens the sections from the wood, he gives them back to be fastened by the bees, choosing a colony that has its brood-nest full of honey.—*A. B. J.*

PRINTED LABELS on white basswood are nice for trees, and why wouldn't they be good for numbering hives? [In time they would turn dark—that is, the wood. I think the manilla tagboard, soaked in linseed oil, would last fully as long, and keep brighter.—ED.]

DO BEES GATHER propolis only after seeing some spot that needs it, or do they bring in a load and then put it where it will do the most good? The last idea is somewhat favored by the fact that, in the fall, smooth surfaces are varnished with propolis.

THE PROSPECT. June 3. Cool and cloudy. Lots and lots of clover bloom, lots of bees, but no storing. Is there no nectar in the flowers? I'm hoping for a turn in the weather, and still expecting a crop. [The turn has come here, but our expectations are on the basswoods loaded with buds.—ED.]

DON'T FORGET, Ernest, that, while a ⅞ top-bar "may be a little more proof against burr-combs" than a ⅝, it is also "more proof"

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against dark capping of sections. [Perhaps so; but when we tried to force the ⅞-inch-deep top-bar on our customers they just wouldn't have it.—ED.]

A REMARKABLE CASE of fidelity to a queen is reported by R. Wilkin. March 19 he found a queen alive in a hive, the queen having been left there caged last October. Glad to get that point, for I always supposed the queen was left to shift for herself during winter; but plainly the bees fed this queen five months in her iron prison.

WHY DO PEOPLE insist that my queens won't work in two stories? I never said they wouldn't. Now a Florida Mann asks what kind of top-bars I used that stopped the queen. With top-bars 1⅛x⅞ my queens go freely from one story to another. But in a few cases I shut a queen in an upper story, and she sulked, and wouldn't lay outside the brood-nest.

A. B. ANTHONY thinks there should be a new word coined, to express in fewer syllables "extracting-super" or "extracting-case." "Super" generally refers to comb honey; but possibly it will do just as well for extracted, just as "surplus" refers to both kinds of honey. But if any one has a short name for "super for extracted honey," let's have it. [Suppose you coin one, doctor.—ED.]

YOU SAY, Mr. Editor, p. 424, "I do not remember that in any work in English this matter of the position of eggs . . . . has been touched upon." That's because you don't read GLEANINGS. See last paragraph of page 348, where a direct quotation is given from Cowan's Honey-bee. Let's settle the question. [I give up. I read the article, but had forgotten it. But our bees seem to say there is no particular angle. Say, doctor, suppose you examine *your* combs and report your findings. Books don't always tell the truth.—ED.]

YEARS AGO A. I. Root taught that a frame of brood would prevent a swarm from absconding, while Doolittle insisted it would have the opposite effect. I wish they could come to an agreement, for I've an idea that, although generally the brood has the right effect, yet in some cases it works the other way. What do you think about it nowadays, G. M.? [*My* experience accords with yours, doctor. Sometimes when a swarm would leave a frame of unsealed larvæ I was strongly tempted to side with Doolittle; but then I concluded that the bees would have decamped in spite of any thing.—ED.]

R. L. TAYLOR reports in *Review* the result of five colonies wintered in cellar and five outdoors, supposed to be alike. Those in cellar consumed a shade less than 9 pounds each; those outside, a shade more than 18 each, and three of the latter died. That's strong testimony in favor of cellar wintering, and yet—and yet—I don't know. [The outdoor colonies were "without protection," save that they were on the south side of Mr. Taylor's honey-house. If they had been put into double-walled hives packed, the difference in consumption of stores would not have been so great. We can winter outdoors in double-walled hives successfully, in our location, but if they happen to be in single hives the bees generally die; and, if they don't die, there is a heavy consumption of stores. The results of Mr. Taylor's experiments are quite what we should expect in our locality. —ED.]

SPEAKING of amalgamation, the editor says, p. 416, "The majority are opposed to having an international organization." How many times must you be told that the Union is already international, and always has been? At least 21 votes were cast for Canadians at the last election. Now will you please tell us just one objection that has any foundation in fact? [The organization is called the National Bee-keepers' Union; but, like some other national bodies, it extends its privileges to residents of other countries. In reply to your question, an international organization is too much of a good thing—too big to handle, and, what is more, bee-keepers of the United States don't want it, if letters to that effect that are continually coming in mean any thing. You know you can lead a horse to water, but you can't make him drink. You may advocate an International Bee-keepers' Union, but you can't make bee-keepers on this side of the line accept it, if I am any judge of the apicultural pulse. The North American, an international organization, has not been such a success as it ought to be. Already there has been some friction among the two factions represented by Canada and the United States. I refer, for instance, to the incorporation matter. The Canadians have entered no protest against making the Union a distinctly national body—one that can have annual meetings, and discuss apicultural questions. If you try to amalgamate there will be a "howl." Then why not make the Union what we want it to be, and let the North American stand as it is? This is the only course under the condition of things that is open to us, in my judgment.—ED.]

THE BOARDMAN PLAN OF FEEDING.

I have been greatly interested in the Boardman plan of feeding, to throw all the nectar into the sections. But right at the outset a great difficulty confronts me as to its adaptability to this climate. In January and Feb-

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ruary the bees gather nectar, and build up on the manzanita, willow, alfilaria, oak, and the thousands of other flowers that are then in bloom. Now, if we fill up the brood-chamber with sugar syrup, all this colored honey will be thrown into the sections, and mix with and contaminate our sage honey, which begins to come in about the first of March, and is white honey.

Now, the question with us is, how to get this honey into the sections, and get it by itself, without mixture with our white honey from the black sage. Granulated sugar is now worth here 5¾ to 6 cents by the barrel. At the rates that were paid here last year, this early amber honey (for it would be amber, supposing we could take it off bodily at the commencement of the white honey season) would bring but about 8 cents per pound. There is but about 2 cents difference between sugar and this honey. Will it pay here? Some of our honey is hauled long distances in wagons—from 25 to 100 miles. I have always figured that it takes nearly one-fourth of the honey to market the crop—that is, my crop—which I have to haul only 30 miles to tidewater. There are many men, away back in the mountains, who can not market their honey for less than about one-third of it. To feed sugar would increase the expense; but the presumption is that they would get more honey—enough more to make it profitable—to the extent of 2 cents per pound, less hauling the sugar out and the work of feeding it. In fact, counting loss of bees in feeding, work, and freight, I do not believe there is any thing at all in the plan, for this coast.

On page 329 P. H. Elwood pitches into Skylark in this ruthless manner: "Skylark, in a late number of GLEANINGS, laments the dense ignorance of bee-keepers; and, having the Rocky Mountains and his pseudonym to shield him, proceeds to hold up myself and Dr. Miller as examples because we do not happen to agree upon the amount of water to put with sugar for winter feeding. I do not object to sitting on the dunce-block; but when Skylark refuses me the company of teamsters, stockmen, and poultry-keepers because they are so much better informed than bee-keepers, I do object. The alleged superiority may exist in California, but is not acknowledged here where bee-keepers are recognized as intelligent as other agricultural classes. The assertion, that the classes mentioned agree, and are better posted than we on the feeding and care of their stock, is not true."

You see, Mr. Editor, he charges me with carrying a deadly weapon—a pseudonym—to protect myself. I give you my word of honor that I do not carry arms of any kind whatever—much less a pseudonym—which I should hardly know how to fire off if I had one. Now, P. H., that was real mean in you to go and holler right out loud that I did not tell the truth when I told you in that same article I was not used to it. A fellow can't be every thing at once, anyhow. Mr. Editor, if I did not succeed in telling the truth I *did* succeed in bringing out a first-rate article from friend Elwood. If you have any other writers of the same sort, just prance them out and I will tickle them up.

BOX HIVES.

John F. Gates, in the *American Bee-keeper*, advocates box hives for breeding-purposes, 12x 12 inches, and 2 feet high, with two sticks crosswise about the middle of the hive—the old style of a hundred years ago. He says:

> You see there is no frame, no comb guides, nothing in the hive but two cross-sticks, and right there is where success is commenced; for the bees are not compelled to follow out any unnatural method as they are obliged to do when on frames and starters; but they are at liberty to build their combs in their own natural way, and will richly repay you for giving them the privilege.

Are straight combs and starters unnatural? Bees build straight combs often, in trees, caves, and under projecting rocks (in this State), and that in the open air. Now, if their general desire be to build straight combs in a state of nature, why is it *unnatural* for them to follow a comb guide along a top-bar? This passion for box hives and cross-sticks is delusive anyhow. It is likely to lead back to brimstone and fire, and I don't like that. The very idea makes me shudder. If a comb 1 foot wide and 2 feet deep is such an excellent thing, why not make frames of that size and hang them in the hive? A door the full size of the hive could be made at the side or back, so they could be examined when necessary. If the cross-sticks are to strengthen the combs, so would a cross-bar in the middle of each frame be equally efficient. No bee-keeper will believe, without the most absolute experimental proof, that straight combs are any impediment to raising a rousing swarm of bees. If there is any thing at all in this plan, it is not in cross sticks or box hives, but in the deep combs. A bee, not having any undeveloped intellect at all, doesn't know whether it is in a box or frame hive—doesn't know a cross-stick from a straight frame. There, now.

A NATIONAL HONEY EXCHANGE AND UNION.

What are you fellows about there in the East, anyhow? Are you all asleep, or like the sluggard, saying, "A little more sleep, a little more slumber, a little more folding of the hands in sleep"? Wake up, for the hour of your deliverance is at hand. But it will not materialize unless you wake up to receive it. There is inexplicable division among you — thrice divided. One party cries, "Amalgamation! it is a specific for all our woes." Another answers, "No, never! shall we amalgamate and

lose our capital of $700 to join an effete institution that has only $7 in its treasury?" Still another party wants a national bee-keepers' association, representative in character, apparently with no objective point at all. In the mean time all stand round crying, "Hurrah for the prosecution of adulterators! Hurrah for a honey exchange that will cut off all middlemen, both in buying our supplies and selling our honey! Hurrah!" Mr. Editor, let us go to bed and take a little rest. These fellows may do something in the twentieth century.

The Union is already organized, and has $700 in its treasury. Some of the members are very much afraid of losing their capital. Has it ever occurred to them that that much money would not prosecute to the end one single well-contested suit?

Now, I see a way they can save their capital and get thousands of dollars more. Let the directors of the Union put the following questions to vote:

1. Shall we add to the present object of the Union that of the prosecution of all adulterators to the bitter end?

2. Shall we add a department, something on the plan of the California Honey Exchange, for the furnishing of supplies and sale of honey?

This would be protection indeed. The whole of these objects are protective, and why should they be divided between two or three societies? Do you suppose there is an intelligent bee-keeper in the land who would stay out of that Union and Exchange? Many men, like me, don't need the *present* protection of the Union, and therefore don't join it. I live in the hills, where the sun goes to bed at 3 P. M. in the winter, and never thinks of getting up for breakfast. I have five or six neighbors, scattered in these hills. Nobody else can get near me, for there is no tillable land. I don't need protection for my bees, but I *do need* it against adulterators and middlemen, both in the purchase of my supplies and the sale of my honey. I would join the Union for either of these latter objects, and there are thousands of men who would do likewise. Do you know what the California Exchange did? As soon as it was organized it "knocked the stuffin' out" of the price of sections at one fell blow—cut down the price to its members, from $3.50 to $2.50! Is there a single gigantic idiot in the country who can not see the advantage—the clear money profit—of belonging to such an institution? So it would be with the Union. It would spread its protecting shield over its thousands of members, not only with its present beneficent object, but in the purchase of supplies and the sale of honey. It would also settle the question of adulteration in the United States for ever. What more do you want? Give us an open road and a clear track and we'll make 90 miles an hour to peace, plenty, and happiness.

HONEY AS FOOD AND MEDICINE.

A REMARKABLE CURE OF DYSPEPSIA BY THE USE OF HONEY.

By Elias Fox.

At the age of 13, in 1867, I contracted that terrible disease known as dyspepsia, in apparently its worst form, and my appetite seemed to crave nothing but sweet. I often ate a pound of stick candy at a time, or more of maple sugar in the spring. Not being able to do very much heavy work it fell to my lot to boil the maple sap; and when "sugaring-off day" came I had a feast of which I repented many a time later on. But that made no difference. My appetite craved it, and eat it I would, as I always felt temporary relief after satisfying my appetite with sugar, candy, sweetcake, or preserves; and thus it ran on for years, growing gradually worse all the time, notwithstanding I was taking medicine of some kind all the time.

After a few years my father bought a colony of bees in a box hive, and of course they swarmed as often as they liked. Sometimes he would have from ten to twenty hives, and on the strongest ones he would put a small box; and if the season was favorable he would get a few caps filled; and while this lasted I would eat as much as I could get, although it was only about half what I wanted; but no matter how much or how little I ate, it did not seem to have the bad effect that other sweets did. Then when fall came, all light swarms had to be set over the sulphur-pit and smothered; and this, being a sort of puttering job, also fell to the "dyspeptic." Well, I would kill from two to six or eight colonies, and, of course, after the sulphuring was done, it was necessary to remove the honey from the box hives, and I did not wait for this job to fall to me, but I fell to it; and then if any mortal ever feasted on honey it was I. I never weighed what I ate, but I would eat about all the time; and I know from the bulk that there were times when I ate three pounds. Many will ask, "Were you not ashamed?" so I will answer it now. I was not at that time, but I have been since, and am actually ashamed now to submit it to print; but it is a fact just the same; and the beauty of it was, that, no matter how much or how often I ate of it, it never once in my life left a bad effect. I always felt well after eating it; and it seemed that, the more and oftener I até it, the better I felt. But, of course, this was only once a year, and generally the supply was exhausted ere the winter was half gone. But I remember once my mother strained a six-gallon jar full, and secreted it for company. It was some months ere she thought it necessary to resort to her sweet treasure; and

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when she did she found it "evaporated" to within an inch of the bottom, and the evaporation was a small wooden paddle.

The bees were left on the summer stand, and straw packed around them, and there would usually be from one to six to survive the winter, until finally the survivor perished with the rest; then, of course, my feasts were at an end; and it is a fact that I grew steadily worse until the spring of 1882, when I was compelled to leave the farm; and when I settled in this village at that time I weighed 132 lbs., and hadn't closed my eyes for ten months without laudanum or morphine. I could eat nothing that did not hurt me. As for beans, onions, or pork, I might as well have eaten strychnine; and even food as light as corn starch, hulled barley, oatmeal, or, in fact, any thing, seemed only to aggravate the disease. Well, I traded an old harness for two colonies of black bees in box hives. I put some boxes on top, and the season was good. I got quite a little honey, and in the middle of the summer I commenced to gain in strength and flesh, and soon could sleep without narcotics. The next spring I transferred my bees and their increase to frame hives, and Italianized them; and since that time I have never been without honey on my table (although I eat much less than three pounds at a meal). I have never taken a drop of laudanum or morphine since, and I can eat beans, pork, onions, or honey, with impunity. My average weight is now 175 pounds.

We have a young man here in this village who was troubled with dyspepsia; and the more medicine he took the worse he became. I advised him to try honey and graham gems for breakfast, telling him of my experience. He said, "Bring me up some and I will try it." I did so, and he commenced to gain, and now enjoys as good health as the average man, and he does not take medicine either.

I attended the bee-keepers' convention at Madison, Wisconsin, several years ago, and Dr. Vance, of that city, read an essay on honey as food and medicine, and in his remarks he said that honey is the only food taken into the stomach, that leaves no residue. He claimed that it requires no action of the stomach whatever to digest it, as it is merely absorbed and taken up into the system by the action of the blood. I sincerely believe that honey is the natural foe to dyspepsia and indigestion, as well as a food for the human system.

Hillsborough, Wis.

[There are many instances on record showing that honey is the most wholesome of any of the sweets. Indeed, our best physicians are now recommending it to those who can not eat ordinary sugar or syrups without distress, but who can take honey without inconvenience. Prof. Cook, backed by some other scientists, has long held that honey is digested, or partially digested, nectar. That bees certainly do *something* to it while it is stored temporarily in the honey-stomach can not very well now be doubted; and the fact that honey can be eaten when other sweets can not, goes a long way to prove Prof. Cook's assertion.—ED.]

CLOVERS IN ABUNDANCE.

OPENINGS IN SECTIONS; HOW WIDE SHOULD THEY BE?

By C. Davenport.

Never, within my memory, have clovers of all kinds, at this time of the year, looked as promising as they do now. I for one should like a crop of clover honey this year. We had none last year, and hardly any basswood either. On this account I had a good many of those 1000 sections left over — perhaps as many as I shall need; but in order to be on the safe side I ordered 4000 from your Chicago branch a short time ago, just two days before the last drop in prices.

Now, I should like to make a few comments on the way those sections are made — not only yours, but others' as well — for I believe nearly all the principal manufacturers now make them just the same as you do. Perhaps I should say that I have never had any sections of your make before. Those I ordered were No. 1 white, open top, standard size. They are the finest and most accurately made sections that I have ever seen; but they, as well as almost all others, have what I regard as a serious fault. They are not cut out enough at the top and bottom. As nearly as I can measure them they are cut out $\frac{1}{100}$ of an inch. Now, a loaded worker can get through a space as small as that; but with a space of that size in sections, the bees are liable to fix them so they can not crawl through; for I believe there are no sections made that are perfectly smooth on the edges; and when a super is put on too soon the bees will sometimes put so much propolis on these rough edges that I have had them practically exclude themselves from some of the sections when using those that were cut out only $\frac{1}{100}$. Of course, this could not happen when using T tins; for the tins prevent the separators from dropping down and dividing the space between the sections; but with section-holders it is different. It is true, that scalloped separators are used to prevent, thus dividing the space between the two scallops of the sections; and if they are scalloped ⅛ inch deep on the bottom they will work all right; but when using section-holders the separators are supported only at each end, and one or both of the projections at the end of the separators are very liable to be broken partly or entirely off, in which case the separator, of course, drops down and thus divides the space between the scallops of the sections; and if these scallops are only $\frac{1}{100}$, that is as much space as the bees have to get in the sections; and while, as I have said, they can get through such a space, from experience I

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know that, when they have to, they will not enter the sections as readily, nor work as willingly, as when there is a large opening. I think that, with me, zinc between the brood-nest and supers reduces the amount of section honey stored, by nearly a fourth. With T tins, possibly $\frac{17}{100}$ is enough for sections to be scalloped out. Still, I much prefer to have a larger opening so that, when using T tins, I can have the separators wide enough to reach clear to the top of the section. I never use any thin strips between the rows. Before using T tins I lay them on a square-edged iron, and, with a hammer, pound the folds of the tins so tight together that there is no need of strips between rows. But I prefer section-holders to T tins for a number of reasons, and believe I can fill two supers, fitted with section-holders, with sections quicker than any one ever did or ever can fill one super fitted with T tins, either nailed or loose; but section-holders—or, at least, mine—have one serious fault. Mine are all made of basswood, and they warp, some up and some down.

About the most satisfactory supers, all things considered, that I have ever used, are some I had made about like the dovetailed T supers you sell, only mine are the same depth as the regular section-holder super; and in these I use the regular section holder, bottom slats loose, without the end-blocks or bars. If these loose slats warp, by turning the bow up after the super is filled and wedged up tight, the sections can all be pressed down perfectly even, and the wedge can then be driven tight enough to hold them in place. Thumb-screws would be nice for this. With these supers I use plain separators, but wide enough to reach clear to the top and bottom of the sections, which were scalloped out full, or over ¼ inch. The bees work in these supers very readily. The sections are kept the cleanest, and the combs are built straighter and nicer than they are in any other kind of super I have.

From quite a good deal of experience in the matter, I believe that bees will work much more readily in sections, no matter what kind of super is used, if the sections are scalloped out full ¼ inch at both top and bottom. I believe that, if the merit of the super I have just described were generally known, it would largely supplant all others. It has all the merit of the regular dovetailed super, and some decided advantages. The slats are much easier to clean and handle, without the end-bars; and, being shorter, they are not so liable to sag or warp; and if they do, then, by the method I explained, the matter can be easily remedied, especially if the supers were fitted with thumb-screws. They are fully as easy to empty when full. There is no space whatever between the sections endwise and the regular slotted or scalloped separator; but shorter ones could be used, I think. I shall fit up all those Hilton T supers I got of you, in this way; for to make them the right size, it will be necessary only to nail quarter-inch strips on the upper edges.

Southern Minnesota, May 7.

[The openings in our sections are intended to be $\frac{7}{32}$ of an inch; this would make $\frac{7}{16}$ for the two openings. There was a time when ourselves and many others made them narrower than this; but we were among the first to increase the width. If you look over more of of these sections I think you will find they measure more nearly $\frac{7}{32}$. I have just been down and looked over our stock, and measured quite a lot, and find they are all exactly of this measurement. A very light shrinkage, however, in your case—that is, of sections that were kept in stock at our Chicago branch—might account in part for the difference in measurement.

We can just as easily as not make the openings $\frac{8}{32}$, or wider if necessary; and I am sure all the manufacturers would as soon make it one width as another.

Your super, if I understand you, is not a T super at all, but is simply a case long enough to take in four rows of sections, and deep enough to take in the sections and pattern-slats, and yet allow a bee-space. Where there are no end blocks or pieces the pattern-slats are liable to get out of skew; and the consequence is, openings in some cases, not coming together in exact alignment, are made very much narrower—the very thing you do not want.

We have made for years supers having mere pattern-slats to hold up the sections, but finally abandoned making them the last year or two because nobody wanted them. The objection seemed to be on account of the slats not coming in alignment with the sections, as I stated; but in the case of the section-holder arrangement, the separators drop down between the slats, and are held in position by the end pieces so the sections must necessarily come squarely over the slats.—ED.]

HOW ADULTERATION AFFECTS CALIFORNIA.

ITS BANEFUL EFFECTS ON THE HONEY TRADE IN PARTICULAR; ADULTERANTS THEMSELVES ADULTERATED.

By C. H. Clayton.

□The government scientists tell us that almost every article of food in use is adulterated with some inferior substance which is either positively harmful or merely of inferior value. In looking over their reports one is astonished at the lengths to which this shameful business is carried. Much of the communion wine which is used throughout the country is made by fermenting moldy raisins and decayed currants. Sugar and sand are familiar mixtures. It is said that there is a substance on the market sold as powdered cinnamon, consisting entirely of pulverized cigar-boxes, flavored with an essential oil. Of 200 samples of chocolate tested, only 20 were found to be pure. And so the list continues, embracing hundreds of articles of daily use. That adulteration is wellnigh universal is a known fact; but it is very difficult to fix the guilt upon the culprits. In order to receive attention in a court of law, charges must be spe-

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cific, alleging time, place, etc., and be supported by competent evidence.

To the best of my knowledge there has not been a single instance here in California where these conditions have been met. I myself have repeatedly asked parties charging adulteration of honey to furnish particulars, and names of witnesses, in order that at least an effort might be made toward having the guilty ones punished. I generally get nicely snubbed, too, for thus (by implication) doubting the word of the accuser.

"What! witnesses to prove adulteration? Don't *I* say so? Do you doubt my word?"

No, my friend, I don't doubt it. I regard you as a man of veracity; but even *your* unsupported testimony will not secure a conviction.

"Well, *I* am not going to waste time hunting witnesses. I have told you that adulteration is practiced. Now you go ahead and stop it;" and straightway he sits down and writes an article for the bee-journals about how prevalent the practice of adulteration has become.

California has a law to "provide against the adulteration of food and drugs," and also a law, crudely drawn as to phraseology, defining what shall constitute "pure extract of honey" (whatever that may be). Our law makes it a misdemeanor to "manufacture for sale, offer for sale, or sell any drug or article of food which is adulterated within the meaning of this act." The meaning given in the act, as to food, is: "If any substance or substances have been mixed with it, so as to lower or depreciate, or injuriously affect its quality, strength, or purity."

This, standing alone, would appear to be sufficient; but further on in the same act we find this exception:

"*Provided* that the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food if each and every package sold or offered for sale be distinctly labeled as mixtures or compounds, with the name and per cent of each ingredient therein, and are not injurious to health." These six concluding words of the exception provide the loophole for adulterators of honey. Glucose itself is largely adulterated; but, so far as I know now, pure glucose has never been held to be injurious to health. No one is specially charged with the execution of the law, and it seems that "what is everybody's business is nobody's business."

What we need is, first, a pure-food law, stringent in its provisions and national in its application; second, officers in each State and county, specially charged with its execution; third, a "campaign of education" directed to the dealers in honey, from the jobber to the retailer. Bee-keepers should take a deep interest in every step directed toward the prevention of adulteration of food products, for they must see that, in the rapidly increasing manufacture of adulterated honey, it is a question of but a very short time until their industry will be destroyed.

Glucosed honey is placed upon the market by enterprising but unscrupulous dealers, and they have flooded the market now to such an extent that I am told it is in many instances impossible to buy any thing else, as the margin of profit is so large on these goods that the dealer is tempted to force the trade on them, although he thereby restricts the sale of honey, adulterated or pure. I have no hesitation in saying that the consumption of honey is restricted and diminished by the sale of the glucosed article.

In 1886, Southern California sold about 5000 tons, at an average price of $120 per ton, or $600,000. We have decreased year by year until now our production may not exceed 3000 tons, at an average price of $80 per ton, or $240,000—a falling off in money value of $360,000. When you consider these figures they are significant, and there must be some reason for this falling-off both in prices and production. I think the principal reason is in the discredit which has been cast upon our honey by the introduction and sale of this glucosed honey to the consumer. At first the buyer is deceived; the honey does not taste the same to him, and gradually it dawns upon him that adulterated honey has been sold to him as the pure article. What is the consequence? No consumer ever goes to the store and asks for a can of glucosed honey. He asks for a can or more of honey. The "doctored" stuff is handed to him. It has the semblance of honey in make and color, and he believes it to be honey. When he and his family partake of it there is but little taste of honey. The fine flavor and delicate aroma of the pure article are lacking. The result is, it is distasteful to him, and he buys no more. Thus the sale is restricted by the avarice of the retailer.

It may be claimed that glucosed honey is sold for what it is. Perhaps it is by the jobber, and perhaps the retailer buys it for what it is; but the retailer never sells it to the consumer for any thing but pure honey. Now, the continued manufacture and sale of this article means the ultimate total extinction of the industry, so far as extracted honey is concerned. And the total extinction of the extracted-honey industry will be of no material benefit to the comb-honey producer, because comb honey can not be produced at prices the masses can afford to pay, but will always be an article of at least semi-luxury. So, in addition to laws strictly enforced as to those who will not learn, we should labor to convince the dealer that his interest lies in the direction of pure honey.

Lang, Cal., May 9.

[It may be that there is such a thing as wooden nutmegs, cinnamon made out of pulverized cigar-boxes, etc., but it is hard for me to believe—almost as incredible as that there are

such things as artificial eggs that would hatch chickens without feathers.

Food-laws are being enacted in nearly all States, and old laws are being better enforced; and while I admit there is a chance for *great improvement* along the line of more and better laws in all States, and better enforcement, I do not—can not—believe that adulteration is so rife as set forth in your first paragraph.

There is no doubt that adulteration is doing its work in reducing the price and in cutting down the production of honey, and bee-keepers need to organize in some form of exchange or union to battle with these evils. If our present Union can be reorganized so as to become a deliberative body with annual meetings, and if, too, in some way it can be made to turn its gun ($700) toward our legislative halls for new and better laws with provisions for their enforcement, then bee-keepers can do something besides talk, talk, talk. The defense feature in the old Union is a dead issue, or ought to be. What we need is some work done to put down adulteration.

Regarding the matter of enforcement, it is difficult, as you say, to secure convictions; but if the State provides or will provide a fund so that officers are *paid to hunt up evidence*, convictions will follow.—ED.]

THE VALUE OF DRAWN COMBS IN SECTIONS.

TWO STARTERS, AND HOW LARGE TO CUT THEM. A TIMELY AND VALUABLE ARTICLE.

By B. Taylor.

In reply to the questions of Deans & Merrill I will explain that the chief reason for using two pieces of foundation in each section is, that thereby we can induce the bees to build the combs solid to the bottom as well as the tops of the sections. When a single full sheet is used, the pieces must not come nearer than ⅛ inch of the bottom of the section, because the foundation stretches as the bees work it out; and if the pieces come near or touch the bottom there would be no room for it to stretch; yet, settle it would; and to find room it would buckle to one side and make the surface of the honey untrue. I now have all my comb honey built solid to all parts of the sections. The comb is finished to about ⅛ inch from the edges of the sections, and sealed solid clear up to the wood; and the surface of the comb is as smooth and true as a planed board. I do it by using full sheets of foundation in two pieces, in connection with narrow sections (1⅛ inches), and the handy slotted and cleated separators; and the three means here mentioned are all vital if we are to be certain to have perfect work.

Section honey produced in this way not only looks extremely nice, but, if crated and packed properly, it may be shipped by freight in 100-pound lots or over, with the greatest safety. Now, mind you, this fine finished honey does not cost one farthing more to produce than the miserable, ragged, half-sealed stuff that is to be found in every city and country store. It is true, the handy slotted separators cost each more than common tin or wood ones; but as I use only three of them in a 24-section T case, and as a set of them will, if made as my own are, and used with proper care, last a lifetime, they are cheaper than those in common use in the end.

Some bee-keepers use and argue for starters of foundation in sections because of the cost of full sheets. I never count the cost of producing a crop of honey except in connection with the profits. If, at the end of the season, the balance is on the right side of the ledger, I care not for outlay; and, friends, I will here tell you that old stingy cheap ways of doing things are past, never to return. I shall use more than $100 worth of sugar in my apiary this season, and I expect to produce gilt-edged honey at less cost than old-fashioned cost-fearing bee-keepers will produce their poor goods.

In using two pieces of foundation I cut the bottom piece 3½ inches long for 4¼ sections and ½ inch wide; and I prefer heavy foundation for these bottom pieces, so it will not lop over when warm. The top piece is cut the same length, and wide enough to come ⅛ inch from the bottom piece. This is necessary to give the top piece room to stretch in working out; and I fasten the foundation with melted wax in a way that it is sure to stick, and exactly in the center of the section.

Before closing this article I must say a word in regard to the importance of sections of drawn combs in securing the white honey in sections. In that splendid article of W. Z. Hutchinson's, on "Producing Comb Honey," in the *American Bee Journal* for April 16, 1896, he says:

> If the flow should open very suddenly, or, at least, become very profuse soon after it opens, sheets of foundation in the sections *may* be as good as drawn combs; but when it comes on gradually, drawn combs, or, at least, a few sections of such in each super as "bait," as it is called, are a decided advantage. If I could have my choice, however, I should be glad to have all of the sections in the first super filled with drawn, or partly drawn, combs. I have seen seasons in which I was well satisfied that a case of partly drawn sections of comb to give a colony at first meant *just one more case of finished honey*. A colony given a case of combs would have those combs filled, and be commenced upon a second case of sections by the time that a colony given simply foundation had made a start. This difference is more noticeable with Italians than with blacks. The Italians cling to the brood-nest until actually forced out of it. If a bee hatches, and the queen doesn't stand ready to put in an egg, it is quite likely to be filled with honey. Give such a colony a case of sections filled with partly drawn combs, and the bees will store honey in the combs just about as readily as in the combs below—a long time before they will draw out foundation in the sections. Combs in the sections relieve the pressure upon the brood-nest. More brood is the result. Yes, and it starts the bees to storing above the brood-nest, and, having made a start, they are sure to continue it. Considering the value of drawn combs for this purpose, I should not try, to any great extent, to restrict the number of unfinished sections at the end of the season.

While I regard Mr. H.'s article as a whole as one of the best that has ever appeared on producing comb honey, yet I am quite sure he has

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made some slight mistakes, and I will point them out. I have had more experience, doubtless, in using drawn combs in sections than any other honey-producer, and I know that brother Hutchinson is wrong in saying, "If the flow should open very suddenly, or, at least, become very profuse soon after it opens, sheets of foundation may be as good as drawn combs." After years of experience I know there is no time in which drawn combs can be used to such good effect as at the rush that comes with the opening of the basswood harvest. This seldom lasts more than two weeks—often not more than one. The workers for extracted, with their ready combs, get great yields in these few days, and comb-honey producers can secure the same large results by the same means—having ready drawn combs to store the rush of nectar in without delay in building new storehouses. I believe Mr. H., when he stops to think, will agree to this correction. Again, Mr. H. says:

Two courses are open by which these unfinished sections may be used to advantage. One is that of "feeding back" extracted honey to secure their completion, and the other that of using them in the spring as just now indicated. In the latter case they must be extracted in the fall, and the bees allowed to clean them up. After this they must be kept away from the dirt and dust. I prefer to "feed back" and secure the completion of all sections that are at least one-half completed. Those less than one-half finished I would extract and keep over to use in the spring. When combs that are nearly completed are kept over and used again, they will not have the smooth, new look of those just built, or of those that were not more than half completed the previous season. The remedy is to use the comb-leveler invented by B. Taylor. This very quickly and satisfactorily reduces the length of the cells to the required depth, which results in a smooth surface when the comb is finished.

Thanks, friend H., for your kindly mention of the "Handy" comb-leveler. I know every comb-honey producer will appreciate it after a fair trial; for with drawn combs, and the leveler to prepare them for use, I can not only have the surface of the finished honey smooth and even, but capping will be as white and clear as combs built on starters, and the white honey can be greatly increased. In the present condition of the markets, dark comb honey can not be sold with either pleasure or profit. Gilt-edged white honey is where the profit is to come from in the future. Mr. H. says, "I prefer feeding back." With my present experience I could not be induced to fuss with the uncertain expedient of feeding back, for I can sell the fine extracted honey I get from cured unfinished sections for nearly or quite as much as the same honey would sell for after being finished; in fact, I would not have them finished at any increased work or expense, for I should thereby lose the opportunity of using them next season with far more profit and less fussy work, and I am quite certain Mr. H. will come to the same conclusion whenever he gives the drawn combs a trial in either a big or little honey-flow. I agree that supers entirely filled with drawn combs are just the thing at the beginning of the white-honey flow, and I positively know they are equally good near the close, for I have, year after year, given the colonies cases half filled with drawn combs and half foundation near the end of the basswood, in which the drawn comb was filled and capped; and the foundation, although in the center of the case, was left entirely untouched. If I had sufficient drawn comb I would use them exclusively during the white-honey season, at the beginning, middle, and end; and by giving the colonies, after the basswood season is ended, cases of sections filled with foundation, in the way I have directed in this article, they will draw out thousands of them during the fall flow, which can be extracted, and the combs be used the following season, to get as much white honey as can be got by using starters or full sheets of foundation during the entire season of white and dark honey. The dark honey extracted will, in such case, be that much clear gain. It can be used with great profit to stimulate brood-rearing the same fall or next spring, or it may be sold for manufacturing or other uses.

Forestville, Minn., April 20.

[If this does savor a little of free advertising of the Handy comb-leveler, it is all right. I believe it is a good thing, and bee-keepers should more generally know of it as a money-getter.—ED.]

SUPPLYING THE HOME MARKET.

A CONTINUATION OF THE SUBJECT.

By F. A. Snell.

Town designated as No. 3 is distant from my apiary 13 miles, and had at one time within its borders, and near by, fully 500 colonies of bees. Owing to the large number of bees kept, and oversupplying this market, the price of honey ruled low. If some of the honey produced there had been marketed in adjoining towns, paying prices might have been maintained; for the amount of honey produced in or near the other towns was slight. Many times the low prices realized for honey are our own fault, and are caused by the unwise or foolish distribution of our honey in marketing, as indicated above. Bee-keepers should consider this matter thoroughly from the Atlantic to the Pacific. We see some of our large cities overstocked with honey nearly every year, while other good markets are hardly considered. At present the town mentioned above has within its borders but few bees; but the people have come to think that they should not pay over 10 or 12 cents for the finest comb honey in section boxes; or a large portion seem to at least. I never sold or attempted to sell any honey in that town until recent years, for two reasons.

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First, the market belonged to my bee-keeping friends living there; and, second, the prices did not suit me. Having a little other business I thought to supplement it by taking along a few cases of comb honey and a few cans of extracted on this my first visit as a honey-seller.

On my arrival I drove up to a grocery, and tied my horse. The grocer was just placing some newly arrived peaches out in front of his store. After a little conversation as to the fruit I told him I had brought some honey to town and would like to have him look at it. I took a case of comb honey from the buggy, and placed it near him where it could be inspected. The honey through the glass looked tempting. I removed the cover, then took out a few boxes for his inspection. He said he had never seen any neater honey than that, and it was well put up. Three or four townsmen came up and looked at the honey. He asked me what I was selling it at. I told him 15 cts. per pound. He said he had no fault to find with the honey; but when honey had to be retailed at over 12 or 15 cents it was slow selling in their town.

I informed him that, in the other towns, I was selling at 15 cts., and no complaint. He declined to take any. I then had him sample the extracted. He thought it fine. I gave him the price, stating that no one should find fault with the price he could sell this at; but my efforts with him were apparently in vain.

Right here I wish to say that, in this town, those new in the extracting business had, years before, taken unripe honey from their bees, and sold it, which had nearly ruined the sale of honey in this form, as it fermented, and was not fit to sell as honey.

I next called at grocery No. 2. Finding them busy I waited until they had a little leisure. I noticed an old case containing, perhaps, twenty-five 1-lb. sections, all daubed with propolis, sections and combs dark, looking as if they had been in use many years. The combs were only partially filled with honey, and, of course, not capped. At a leisure moment I made my business known, and I secured their permission to bring in a case of my honey. It was viewed through the glass readily. I removed the cover and took out some of the boxes for their inspection. The honey suited them. My price was asked and given.

"We have some comb honey over here," showing that first noticed by me on entering their store. I asked who produced it, and learned that he was an old friend, and a man of intelligence quite above the average. I knew him to be, as the reader knows well, not made for a bee keeper. At first I sold them one case of the honey. I stated that I should not be in with honey that season again, and would think they could readily sell more, but that they were to be the judges in that matter. They took one more case, thinking also that they could do so. As they had a supply of extracted I made no sale, but let them sample my own. The price was 15 cts. per lb. for the two cases. I left, with the encouragement of probable future sales.

The next grocery was visited, and I found it unsupplied with honey; so I effected a small sale of comb and extracted, and I shall try to supply that store with honey in the future if I am so fortunate as to get a crop of honey.

Two other grocers were called on, but no sale effected, as it was claimed by them that they could not sell the comb honey at any profit. A little extracted honey was on hand in one of these stores, of a very inferior quality. My own was sampled, and seemed to please; but that on hand must go before more was bought. A few cans of the extracted were sold before leaving town, to private parties, for home use.

Where I have made sales of any consequence of extracted honey at the stores I have not retailed; but if no honey could be sold at the stores I have felt free to retail it in any such town, either in or out of the comb. The results of the day in selling honey were limited, but the start had been made in opening up what may prove to be a fair market for honey near home at fair prices.

Milledgeville, Ill.

ONE OR MORE EGGS IN A CELL, FROM A GOOD QUEEN.

Dr. Miller:—I have a queen which, last season, was one of the best ones I had—large and very prolific. I examined the colony to-day, and at first thought the queen was dead, and had a laying worker, as I saw in some cells two and in some three eggs. Still, the cells that were capped were worker-brood capping. On careful examination I found the queen large, and a beauty. What is the reason of two and three eggs in a cell? They are not all so; but in two frames I discovered I should think fifty or more. GEO. L. VINAL.

Charlton, Mass.

[Dr. Miller replies:]

It is possible that the number of bees in the colony was not large, and that the queen, being very prolific, could lay more eggs than the bees could take care of; in which case, rather than lay outside the brood-nest, she would lay in cells already occupied. If the colony was strong, and there were plenty of cells without using each cell more than once, then I should say it was one of those abnormal cases that one doesn't account for—simply knows their existence without knowing the reason. Among other possibilities is the one that there may have been a change of queen; and young queens, when they commence laying, are inclined to do exceptional things. C. C. MILLER.

Marengo, Ill.

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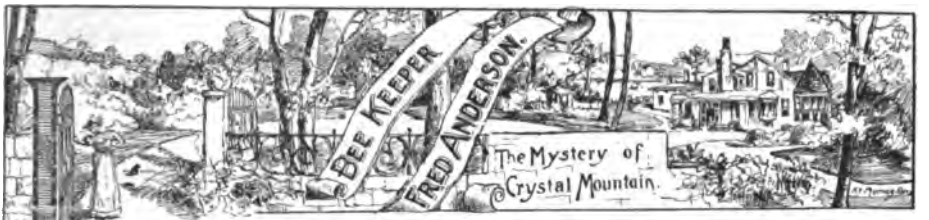

IN spite of the uncomfortable feeling of misfitting clothes, Fred passed a very pleasant evening with his new acquaintances. Mr. and Mrs. Buell had both been teachers in the public schools, and had surrounded themselves, even in this retreat, with many of the luxuries of life—books, musical instruments, and works of art.

"We have but little use for all these things now," said Mrs. Buell, with a sigh. "Our dear child has no desire for the things she used before she was injured, and music and art have no charms for the rest of us."

Fred saw that it was their habit to dwell much upon their affliction, and, taking up a guitar that had evidently been unused for some time, remarked that he could thrum the strings a little, and would play if they desired. Securing their cordial assent he tuned the instrument, and sang several old familiar songs, selecting lively airs; and every nook of the house was enlivened and cheered by the music. As flowers show a brighter hue in the pure sunshine that follows a shower, so the faces of all present wore a more cheerful aspect after the instrument had been laid aside, and topics of the times were discussed with animation. Alfaretta listened with as much interest as she would to any agreeable noise, and would now and then sing her little song, "My lover is on the sea," etc.; and it was rendered as though there was a sad wail behind it. She was otherwise quiet under the eyes of her parents; and any attempts on her part to dub Fred as "Mr. Pickerel" were promptly checked by Mr. Buell, and he would bid her say Mr. Anderson, so that, finally, she seemed to forget the name so appropriately applied, and to address him by his right name. At an early hour she retired; and when Fred was shown to his room, Mr. Buell said, "You need not be surprised to be awakened early, for our daughter will be out and singing her song before it is fairly light."

The morning song, however, when it came wailing through the shrubbery, found Fred awake. He had slept fitful naps, and dreamed fitful dreams. The burden of them all was Alfaretta. His generous heart longed to do something that would recall the wandering mind, and place it again in the realm of reason.

The morning duties all performed, and Fred finding his clothing dried, he was glad to get into it again.

Having made his errand known to Mr. Buell the previous evening, the latter said that he had been contemplating a day's outing up the river with his wife and Alfaretta, and he might as well take it now as at any time. "We can land you nicely on the ranch, for Mr. Ghering lives only three miles up, and on the opposite bank of the river."

Mr. Buell, however, cast a shade of anxiety into Fred's mind by saying that he was quite sure that Ghering had no apiary unless he had recently invested in such live stock. "Seeing is believing," said he, "and we can soon put you where you can investigate."

While Fred was waiting for the family to gather at the landing he had time and inclination to view the surroundings of this sad home. He observed that Mr. Buell had not been idle,

"MR. ANDERSON, PAPA IS READY."

for the grounds were tastefully laid out in walks and drives; and where they led near the river bluff, rustic seats were arranged; rare shrubs adorned other places; and the house,

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part adobe and part of more modern architecture, had a fine setting of sycamore-trees behind it, while the climbing rose hid a corner of the white adobe, all making a picture of loveliness. Too many times had he in this journey up the river seen some of nature's beauty spots marred by rude cabins with unkempt and repulsive surroundings, and this, too, in a country where the vine is ever striving to hide the deformities of nature, and is ready, if merely planted by the hand of man, to cover the rough boards of cabin or fence, and make them things of beauty.

As Fred turned his gaze toward the flowing river the episode of the previous day came to mind, and he reflected upon the ease with which one will forget recent experiences when something new and of absorbing interest takes possession of the mind; and Fred now found his whole nature absorbed in the beautiful surroundings, in the residence, and, above all, in the lovely inmate, though she was so sadly demented. With these thoughts in mind, and while looking far beyond the river into the blue unfathomed depths of a California sky, he felt as never before that the mystery of life and of love was fully as deep and unfathomed.

While thus absorbed, a hand rested lightly upon his shoulder, and a musical voice said, "Mr. Anderson, papa is ready." The action was so natural, the touch so gentle and so unlike the Alfaretta of the previous day, that Fred was thrilled as by an electric shock, and his hopes came rushing back from the unfathomed depths into which they had plunged. A moment later, however, the thrill was succeeded by a chill, for his companion said, "Freddy, see my teeth," and the uncanny grimace followed.

Without a word Fred strode determinedly to the little wharf, and insisted that he be allowed to row the boat. After some parleying Mr. Buell granted the favor. As he vigorously plied the oars he felt as though he would like to dig the whole river up; and as he sent the boat spinning through the water, his desperate looks and strokes caused Mr. and Mrs. Buell to exchange glances, as much as to say to each other, "I wonder if he is going crazy too;" but Fred had to find vent for his wrought-up feelings, and a mile of such rowing brought some relief; and at the end of three miles his turbulent thoughts had regained their wonted calm. Here at Ghering's Wharf Mr. Buell relieved Fred at the oars as they approached Ghering's Landing, and here he parted with the people who treated him with such kindness. A pressing invitation was given him to visit them soon and often. As the boat drew away from the wharf where Fred was standing, Alfaretta waved a farewell, and sang again her well-worn song, "My lover is on the sea," etc. Fred watched them until they rounded the bluff, and then turned his attention to the new work in hand.

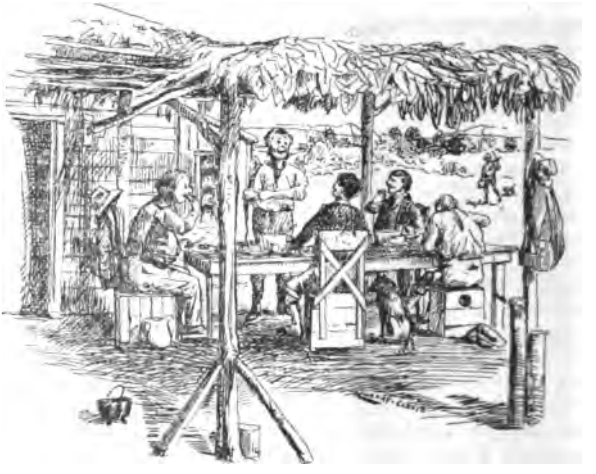
A short walk of five minutes and he was in front of Ghering's cabin. The evidences of bachelorhood were plainly visible, for the bachelor was preparing the noonday meal. The stove, table, and culinary utensils were all arranged under an awning of tules. A stranger on the ranch was evidently not an every-day occurrence, for the cook and three ranch hands who were just coming in from the fields looked with some curiosity upon the new comer.

"Is this Mr. Ghering?" said Fred, addressing the cook.

"Yes, sir, that's my name; and I'm a free and easy Pennsylvania Dutchman; and where do you hail from, if I may ask?"

"My name is Fred Anderson, and I am from the Pine-tree State."

"Let me see; that's North Carliny, ain't it?" said Ghering.



DINNER AT GHERING'S RANCH.

"Oh, no," said Fred; "it is Maine—I am from Maine."

"Yes, yes, sure; I ought to haff known that; but it's so long since I haff studied geography or even thought much of those distant Eastern States that I haff forgotten all I ever knew about them."

"Mr. Ghering," said Fred, "while in Sacramento I learned that you had an apiary for sale or to rent, and I have run up here to see you about it."

"Ap-i-e-ry—a pi-ry—what in the dickens is that, any way? Say, Matt," said he, turning to one of the men, "what is an apry?"

"Sure, Misther Ghering, it's meself that can tell yees. It's a corral where they keeps all kinds of birds, agreeable loike—aigles, hum-

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ming-birds, tomtits, crows, hawks, hens, and—" "honey-bees," said Fred, smiling.

"Yes, sor," said Matt; "that's it—any thing that has wings or feathers."

"In other words," said Fred, "and to speak more definitely, Mr. Ghering, I learned that you had a large number of bees in hives."

"Bees in hifes?" said Ghering. "Well, now, if I don't call that shust gorgeous. Bees in hifes! Mr. Anderson," said he, vehemently, "whoefer told you so, told you von big lie."

Fred here produced and read the letter he had received from Royal Smith. The effect upon Ghering and his men was a shout of laughter. "Horses! horses again," said Ghering and Matt. When the merriment had subsided, Ghering said that Smith "shust ought to be tied to a mule's tail and trotted out of the country. He is always up to some shust that kind of joke. He sent my foreman here, Matt Hogan, to this ranch on a similar errand. He led Matt to believe I had a pair of horses for sale cheap, and I hadn't a horse on the ranch. I worked with oxen then, and the only horses I possessed were two saw-horses, and that's what Smith sent him after. But, Mr. Anderson, your case is a leedle not so bad, for there is bees on the ranch, but no hifes;" and, stepping outside the awning, he pointed up the river. Said he, "Do you see that chalk butte?"

"I see," said Fred.

"Well, that chalk butte is full of bees, and you may haff every one of 'em. The butte is on my ranch."

Fred's disappointment was plainly manifest; and Mr. Ghering, being a kindly disposed man, said, "Mister Anderson, you can not get down the river until to-morrow, and you shust take dinner with us, and then go ofer to the butte. where you will see the most bees in caves you efer saw. It is a wonderful show, and ought to be interesting to a lofer of bees."

Fred thought he might as well make the best of the situation, and, thanking his host, he sat down with the men at their repast. Not having an extra chair for his boarder, an old box was brought into requisition.

While eating, Matt Hogan would often smack his lips and say, "If we ounly had some of Misther Anderson's honey it would be foine."

Similar remarks from the other men kept up the merriment at Fred's expense through the entire meal. But Fred paid but little heed to their jokes. He answered them pleasantly, and, at the close of the meal, he aided Ghering in the clearing-up of the table and the washing of the dishes. Ghering complained about the time it took him to cook and keep house. A good many things were neglected in the house in order that he might keep his men at work.

When things had been cleaned up Fred started for the chalk butte, half a mile away. Ghering thought it would be more agreeable to himself to be on the other end of the ranch, "and," said he, "Mr. Anderson, you may haff the bees and I will till the soil."

There was not much spirit in Fred's movements, and he would not have even visited the butte but for his desire to see a California bee-cave.

The chalk butte was a peculiar river formation. Its surface contained about an acre, and was elevated some forty feet above the river, which made a great bend around three sides of it. The point that projected into the river was the highest portion, while there was a sag in the part that joined the main land, and it appeared as though the river ran here at some time in the past. A few sycamore and California-walnut trees were growing thriftily here.

Upon the down-stream side, and about 100 feet from the shore, was a deep crevice in the face of the cliff, at least three feet wide and ten in perpendicular length, and from this large aperture poured an incessant stream of bees. Their loud and busy hum aroused Fred's spirits, and he began to have a genuine interest in the situation. He knew from the volume of bees that there must be many colonies within that aperture. There was no way of getting a view of the interior, save from the bottom, and with the aid of a ladder; but here the water seemed to be of such depth as to prevent the erection of one.

Walking around the whole circumference of the bluff he found other places where colonies of bees were lodged in smaller crevices. From the surface of the bluff there was a fine view both up and down the river. Mr. Buell's landing, three miles below, could be seen, and many other points of interest.

The exploring done, Fred sat himself down upon the river-bank below the butte and in sight of the bees, and here listened to the music made by the thousands of busy workers as they darted through the air.

For some minutes Fred studied the bees, and speculated upon the formation of that peculiar house-apiary; but his eyes at last turned from the bees and were resting upon Buell's landing. He forgot the bees, and his speculations were upon the fair being he had met under such peculiar circumstances, and who was in that sad demented condition. "What a beautiful name!" said he; and he said aloud, "Alfaretta."

Again the hum of the bees made music in his ears; and as he glanced upward to the cliff his eyes kindled; he sprang to his feet; an idea possessed him. Was it born in the repeating of that name Alfaretta? Be that as it may, he had an inspiration, and exclaimed aloud, "By George! I will do it."

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

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GRADING HONEY.

By Dr. C. C. Miller.

It seems to me Editor Hutchinson is right in thinking that it is not wise to put in place of the system of grading adopted at Washington another system proposed by a private individual, especially as this latter system had been before the convention at Washington, and rejected by them. As he says, if there's any thing wrong in the Washington grading, let it be pointed out and corrected at the next North American.

But I don't feel so sure that he's right in thinking the system all right because no fault has been found by dealers or shippers. I'm afraid the silence with regard to it has been rather the silence of indifference or despair. It's a difficult thing, as the discussions showed, to get all to agree upon any one system; and perhaps the feeling was, "Well, I suppose there isn't much chance to get any thing satisfactory, so it's hardly worth while to say any thing about it." That it has been used three years without fault in one of the journals is some degree of testimony as to its being satisfactory. That only one of all the journals used it, and that no word of fault was found because it was not used, seems to be pretty strong proof that it wasn't thought worth using.

I confess I don't feel very sanguine that any thing entirely satisfactory can be reached; but as attention seems just now turned in that direction, it may not be unwise to follow Bro. Hutchinson's hint and point out what isn't just the thing in the Washington grading.

As already noticed by you, Mr. Editor, the Washington grading gives no No. 2. There are just two grades of honey—a first and a second grade. If nothing else is to be put on the market, then two grades are enough; but is it exactly the honest thing to name them "Fancy" and "No. 1"? When you buy a thing for a No. 1 article, and afterward find out that you have the lowest grade to be found, don't you have just a little feeling that you have been swindled? And don't the dealers to some extent consider the grades as No. 1 and No. 2? Right here it may be well to examine quotations as given in *Review* for March, perhaps also looking at those given in GLEANINGS for April 1, as the quotations in each are about the same date.

In *Review*, C. C. Clemons & Co. quote no fancy, only No. 1. Does that mean that the only kind of honey sold in that market in comb is such as described in No. 1. "with combs uneven or crooked, detached at the bottom, or with but few cells unsealed"? But in GLEANINGS they quote No. 1 at same prices and No. 2 at lower price. Now, isn't their No. 1 in each case the "fancy" described at the head of *Review's* quotations; and doesn't it look a bit as if they were saying, "We quote No. 1 as our best honey in each case; but as there is no No. 2 in *Review* we don't give it there, but we do give it in GLEANINGS." And isn't their action, if it means any thing, really objecting to the grading in *Review*? Batterson seems to use the grading straight, and perhaps the others do; but in Minneapolis there's nothing but fancy. Burnett says, "Fancy white, 15; and No. 1 white, 12 to 13." In GLEANINGS he says, "14c for clover and 12 to 13 for basswood," which rather goes to show he doesn't pay any attention in actual transactions to the North American grading. I doubt whether many of the dealers do.

On the whole it may be a good thing if all the journals unite to push the Washington grading to the front. It's better than none; and if the dealers can be got to use it, then it's possible enough attention may be given it to remedy any deficiencies.

But ought nothing to be said about pollen in sections? By the Washington grading, every cell may contain pollen without throwing it out of No. 1 or even fancy. Where would you put a section, white as chalk on one side, but a little darkened on the other? How many cells are unsealed when there are "but few cells unsealed"? Guess I'd better not ask too many questions.

Marengo, Ill.

[I believe with the doctor, that there ough to be a No. 2 grading. Necessarily *some* honey will get into the markets that is neither "Fancy" nor "No. 1," and should therefore be classed just what it is, or No. 2. Moreover, the commission men should state what price they are allowing on such honey, so that the producer can decide whether he can send what he has of that sort to the city. No. 2 should, in my estimation, include, in comb honey, sections that are travel-stained, or nor entirely filled out or capped over, or light in weight, but the honey itself of good quality; that is, I would make No. 2 describe the *condition* not the quality of the honey itself.

If the other publishers agree that there should be a No. 2 added to the Washington grading, as now partially adopted by the bee-journals, I will have it incorporated in our Honey Column. At all events, there should be uniformity of action on the part of all the journals; for a system of grading, if used at all, should be universal, or as nearly so as may be.

As to the wording, I suggest that the doctor give us a form for No. 2, being careful to make it brief and to the point. As to the classes, I would add one; namely, "mixed," in addition to the terms "white," "amber," and "dark."

These two changes, a "No. 2," and the term "mixed," would make the current grading nearly perfect. By referring to the Honey Column the reader will see how the grading now stands.

It should be said that this article of the doctor's was written before the grading adopted by the *Review* was used in GLEANINGS. Since then all our commission men have made their quotations conform in every particular to the new grading; and with a single exception they did and are doing it without a protest.—ED.]

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BEES KILLING OFF DRONES.

Question.—I have ten colonies of bees which wintered well in the cellar. They are strong in bees and brood, and are working well on white clover, but they are killing off their drones. What could the drones have done that they are thus killed? They are making a business of killing them, as much as if it were September. What is the cause, and what will be the result? Two colonies swarmed a short time ago.

Answer.—The questioner seems to think that his drones must have done something very wrong to cause the bees to kill them; but I hasten to assure him that his drones were not "sinners" above other drones, for all drones are treated in the same way under like circumstances. The failure of flowers, or the flowers failing to secrete nectar, on account of unfavorable weather, often causes the bees to kill their drones as early as May or June, as well as later on in August and September; and if the scarcity of nectar is great enough, drones just hatching are dragged out at once, before they get even a sip of honey; and if the colony is on the verge of starvation, drone brood, in its milky state, is torn from the cells and sucked dry to prolong the existence of the colony.

The questioner did not tell us any thing about what kind of weather he had been having in his locality; but I suspect it was very much the same as we have been having of late; namely, cool, cloudy, and windy, with more or less rain. During such weather as this the bees rush out every time the sun "breaks the clouds," and appear to be working well, while they are not getting a living for themselves and the brood, to say nothing about storing sufficient to afford the presence of these "gentlemen of leisure." Such a state of affairs as this during white-clover bloom is not an uncommon occurrence, and I believe a failure of nectar in the clover-blossoms, in our questioner's locality, is the cause for the killing of the drones. The fact that only two of the colonies have swarmed, and no swarming is being done at the time of writing, shows that there is no secretion of nectar to amount to any thing, else his colonies would keep on swarming. Only two swarms, with the bees killing off the drones, is proof to my mind that clover is yielding no honey, even though the bees may appear to be working well.

As to what the result will be, I see no reason to fear any thing bad. Nature makes no mistakes, and bees never kill off drones where they are needed. The colonies which have not swarmed have given up all idea of swarming for the present, without doubt, so they have no need of drones; and I will venture the assertion, that, if he look into the two colonies which have swarmed, he will either find plenty of drones or a young laying queen: for a colony having queen-cells or a virgin queen will preserve their drones, even till the whole colony perish with hunger. If the failure of nectar continues, then the drones in these two colonies will be killed as soon as the young queens get to laying; but our questioner can rest assured that, until said queens become fertile, the drones in those hives will not be driven out as useless consumers.

SINGING QUEENS; WHY QUEENS PIPE.

Question.—I have an Italian queen that sings like a hen. What do you think is the cause of it? She sings while moving among the bees as well as when still, and so loudly that she can be heard five feet away when the hive is closed. The day before I heard this strange noise I cut out all of the queen-cells, but could not find the queen. The next day I resumed the search for her, and very soon, upon opening the hive, I found her singing as happily as a lark. It was not a piping noise, but a regular singing like a laying hen; and, besides, it was an old queen, and it is only young or virgin queens which pipe.

Answer.—Notwithstanding our correspondent says, "It was not a piping noise" which he heard, I am inclined to believe that it was just that and nothing else. It is a mistaken idea that many adhere to, that virgin queens are the only queens which pipe; for I have heard queens two and three years old pipe many times, although the noise made by them is not quite so sharp or cut up so much as that of the virgin queen, where there are rival queens in the cells. There seems to be a more intense hatred toward rivals on the part of a virgin queen than with laying queens; but when thwarted in her purpose, a laying queen will resent it as well as a newly hatched virgin. Although I have never heard any queen-breeder say so, yet I think I am justified in saying that there are few of them who have not heard laying queens pipe, or call to each other, where a number of cages containing queens placed near together were left near each other for a short time; and I doubt not but that very many who are not queen-breeders, who have ordered a plurality of caged queens sent them, have heard this piping or singing noise produced by the queens while in the confinement of the cages. I have heard it hundreds of times with queens when preparing them for shipment, and many times from the cages of those which I have received. Any thing which enrages queens and causes them to cease laying will cause them to go to piping; and the cutting of the queen-cells from the hive, as did our correspondent, at a time when the queen

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had a great desire to swarm, will cause this result. Years ago, when I cut off queen-cells to restrict the issuing of first or prime swarms, I often had instances of that kind, and in every case I found that such colonies would swarm without the construction to completion of queen-cells. Another thing, I have found that any queen that is enraged enough to pipe will not lay any eggs while so piping, or during the time. Again, I have had queens which I was trying to introduce insist on piping, and the bees would always cluster such queens, or the cage containing them, as long as they continue to pipe and make such angry demonstrations.

In the May *Review* we are presented with a "Foreign Leaflet on Honey," from which I cull:

"I know parents who, in times of epidemics, give to their children, as an antiseptic, honey in abundance, and with complete success, these children having invariably escaped the illness."

"The Creator seems to have united every property in this remedy. Honey is not only sweet and wholesome, but also a food, a blood-producer of the highest order."

"Whoever takes regularly this bee honey will not only be much better nourished, but will also be spared, under ordinary conditions, a heavy medicine-bill, and will in any case increase his individual capacity."

Putting these quotations side by side with Health Notes in GLEANINGS, don't you see something paradoxical about the two lots of writings? If honey is such a king cure-all, how come so many sick ones in the ranks of its producers? How "kweer and kontrarie" mankind can be, anyway! We shall surely have to enter heaven by different routes.—*Somnambulist in Progressive Bee keeper.*

The tornado which visited St. Louis last week is without a parallel in the history of our country. Hundreds of lives were lost, and millions of dollars' worth of property destroyed; homes laid waste and hearths made desolate, while sad-eyed mourners watch and wait in vain for those who never come. In a recent card, Mr. E. T. Flanagan, of Belleville, Ill., says that the report of the storm was not in the least exaggerated, and that the destruction of life and property is simply awful. He also informs us that the tornado destroyed $500 worth of fruit for him, but his bees escaped, and he is thankful that the lives of himself and family were spared.—*Editorial in Progressive Bee-keeper.*

Carelessness is found among bee-keepers as well as elsewhere. We have just received a letter from "Alexander," with no State or even name or address of the writer given. Of course we can do nothing with it until we get another letter from the same writer, who will likely "kick" because we did not reply to his former letter, when we have no means of knowing who the man is, or in what State he lives. Be careful *always* to sign your name to a letter, and also give your address in full.—*Editorial in American Bee Journal.*

Don't make a mistake this year, and send your honey off to some unreliable city commission firm. Better take two or three cents a pound less for your honey than to ship it any great distance to market, and run the risk of leakage, breakage, and paying high commissions. Supply the home demand first, by all means, and make some effort to enlarge it. Many families do not know how healthful honey is, and need only to be assured of the fact, when they will become regular users of it.—*Editorial in American Bee Journal.*

THE reports of the good times we *hope* are coming, or perhaps already here, are just beginning to come in. Here is a sample:

> We are in the midst of the heaviest honey-flow I ever saw—raspberry and other wild flowers.
>
> Morrill, Minn., June 8. A. T. McKIBBEN.

Our bees are just starting on the basswoods, and by the myriads of buds now opening we anticipate a good flow of honey.

THERE! I nearly caught Dr. Miller in a case of unconscious bias. Almost before he thought, he concludes, in Straws, this issue, that Mr. Taylor's experiments furnish "strong testimony in favor of cellar wintering." As I understand it, they were made for the purpose of determining just how much effect the protection afforded by a cellar had over colonies in single-walled hives, not how much difference there is between indoor and outdoor colonies, both according to the latest and most approved methods.

THE May number of the *Southland Queen* is a pleasure and a surprise. It is fully illustrated, contains extra pages, and is filled full of bright spicy things. This is what she (the *Queen*) has to say for herself:

> She starts out on her second year printed on her own press, with her own type, in her own house, on her own soil, and run by her own hands. Now that the *Queen* is a fixture, and a settled fact, send in your subscriptions and see what a bee-paper we will send you.

Success to the *Queen!* and may she see many another birthday as auspicious as the first.

A NATIONAL BEE-KEEPERS' UNION AS A DELIBERATIVE BODY.

A PRIVATE letter from a prominent bee-keeper, commenting on the amalgamation matter, contains a paragraph which I can not forbear giving right here:

> All this talk about "marrying," and "a poor society wanting to get the money of the other," is "all bosh;" *for those who are the very backbone of each* are the very ones who are in favor of a union or a new organization, the outgrowth of the others.

Italics are mine. In another place the same writer says:

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It makes no difference to me, and I guess not to any one else, what we organize, *so that it is what bee-keepers want.*

Italics mine again. The bee-keepers of this country want, if they want any thing, a *national* association; and the easiest way, in my estimation, is to make the Union a deliberative body, having annual meetings. Let the old North American stand as it is.

BEE-PARALYSIS.

THE question is asked in the *Southland Queen* as to when and how the name "bee-paralysis" originated for a certain kind of disease that afflicts bees, causing them to become swollen, black, and shiny, and to exhibit a palsied or trembling motion. When our A B C of Bee Culture was first written its author described this disease as above, and then said he had no name for it. For a time it was called the "nameless bee-disease." This, certainly, was a misnomer, and a discredit to those of us who help to make our special nomenclature.

I called Prof. Cook's attention to the matter, and asked him to give us a name from his standpoint as an entomologist that would be appropriate and at the same time indicative of the real symptoms and characteristics of the disease. He suggested "bee-paralysis." Liking the appellation I incorporated it in all our own bee-keeping literature so far as possible, instead of the old or "nameless" name that had been used formerly. The late editions of our A B C book, and late volumes of GLEANINGS, have all made use of the new name, and I see it is now adopted by the other bee-journals.

This same disease was called by Mr. Cheshire *Bacillus Gaytoni*, after Miss Gayton, who first called his attention to this peculiar disease; but at that time we were not aware that bee-paralysis and *Bacillus Gaytoni* were probably one and the same; but we now have good reason to believe that they are, from descriptions that have come to us from across the water, as they tally so closely with what we now know to be and call bee paralysis.

COMMISSION MEN WHO WILL NOT ANSWER LETTERS.

Two or three times producers have complained to us that commission house so and so would not answer letters. In one instance the bee-keeper, whom I will call Mr. A., some time last October sent along a consignment of honey—to ——— & Co. Some two months rolled by, and Mr. A. wrote us that he had not heard any thing about the honey. We replied that the firm was perfectly good, well quoted, and had always dealt satisfactorily with us, and that we had no doubt they would render in due time a satisfactory account of sales. Time went on, and Mr A. wrote us again, saying that he could get nothing out of the firm—that they would not even answer his letters. We wrote this time, asking them to kindly look into the matter and write to Mr. A. Two more weeks went on, and still no response, either to Mr. A. or ourselves. Again we wrote, as kindly as we knew how, calling their attention to this whole transaction, and mentioning the fact that we had previously written, and asked them to look up Mr. A.'s case at once, or we should be constrained to withdraw their quotations from our Honey Column. This time we "raised the wind." We received a prompt but curt letter in reply, pointing to their many years of successful business career, and that they had all this time been able to conduct their business "without outside interference," and that they would thank us to mind our own business, and "forbear threatening." They closed up by stating that they had sent Mr. A. a full account of sales, with a check covering the same.

In our reply we simply stated that we furnished them, and all other commission firms, space in our Honey Column free of charge, and that the mere fact that we accepted their quotations was a guarantee on our part to our readers that we considered their firm, along with the rest, responsible and A No. 1; we further stated that, as we accepted their advertisement, and felt in a measure responsible, we had necessarily to come in as a third party to the extent that, if they did not attend to Mr. A.'s case, we should simply have to drop their quotations. This last is evidently what they call a "threat."

We hope our readers will keep us fully informed as to the firms that will not answer letters in regard to the honey sent them. The commission houses who are quoting honey for us are entirely responsible and, so far as we know, honorable; but if any of them do not like our "interference," all they have to do is to withhold their quotations from us.

As publishers of a bee-journal, we feel that it is our duty to champion the rights of the *producer*, and in all cases to stand unflinchingly for the right, no matter whether it favors bee-keepers or commission men. Where we have been appealed to as referee, we have decided in a few cases in favor of the commission man instead of the bee-keeper.

SELLING HONEY ON COMMISSION; QUOTING THE MARKET TOO HIGH, ETC.

WE have run across one or two instances where commission houses have been quoting two or three cents a pound higher in their market quotations than they actually render to the bee-keeper in their account of sales. Of course, the latter complain, and justly so.

We realize the fact that it is not always possible for a commission merchant to sell honey for what he *thinks* he can; but when that commission merchant makes his quotations in the bee-journals about two cents higher than the

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price he pays to the bee-keeper, he is not doing as he would be done by, to say the least. In the first place, he virtually robs the bee-keeper of two cents on every pound of honey sold. In the second place he robs the honest commission man, who would have got the consignment, of the sale of that honey.

We want our bee-keeping friends to keep us fully posted on all cases of this kind; and if your commission man does not allow you in his account of sales the figures that he has quoted at the time the sale is made, then ask the reason why; and if he does not give a satisfactory answer, report him to us at once.

We make no charge for advertising-space for commission firms in our Honey Column. The space is valuable, and they are willing to pay for it; but we would rather not take any pay, so that we can drop them out of the Honey Column at any time when they fail to toe the mark.

I have been thinking it would not be a bad idea to ask our commission men to render account of sales according to the system of grading at the head of our Honey Column. For instance, Messrs. A. B. C. & Co., commission men, will make account of sales something like this:

18 crates of comb honey, fancy, 15 cts.
50 cases ditto, No. 1, 12 cts.
5 cases comb honey, No. 1 amber, 9 cts.
A. B. C. & Co.

The bee-keeper knows exactly how the honey was classed, and the prices received. But, unfortunately, the account of sales at the present time is rendered something in this way:

18 cases of comb honey, 15 cts.
20 cases of comb honey, 12 cts.
10 cases, amber, at 9 cts. X. Y. Z & Co.

It will be seen from the last named that the producer does not know exactly how his honey was classed—that is, *why* the 20 cases sold for 3 cts. less than the 18 cases; but if the account is rendered according to the one by A. B. C. & Co. he knows whether or not he is getting market quotations. If our commission men should see this I hope they will take the pains to make out their account of sales somewhat on this plan—the one over the name of A. B. C. & Co.

THE SUGAR-HONEY QUESTION AND THE ATTITUDE OF THE REVIEW.

THE following is a letter received from Bro. Holtermann, of the *Canadian Bee Journal*, which will explain itself:

THE REVIEW NOT SILENT.

I notice your little item in GLEANINGS, page 432, June 1, a footnote to an extract from the *Review*, in which the editor of the latter periodical claims that the *Review* has kept silent upon the "sugar-honey" question, and feels inclined to take me to task for condemning him for what are his private opinions. If the *Review* has kept quiet upon this question of late, what does the following mean in the March, 1896, issue of the *Review*, page 88? "The last number [of the *Canadian Bee Journal*] makes a cheerful shout over the passage of the legislation they have been crying for so long—the anti-sugar-honey bill. It has been amended somewhat, it seems; and lack of time or modesty, or some other reason, keeps them from giving us the text, so we can not see for ourselves just what sort of a looking "critter" it is. We venture to guess that the Solons of the government have given them enlarged penalties against real adulterators and evil-doers, and shorn their power to persecute innocent neighbors."

The above is penned by Hasty, in his "Review;" and knowing the views of Hutchinson and Hasty, and reading the above, if the writing has any meaning at all, does it not mean, viewed from their standpoint, that the members of Parliament would be wise enough to know that such feeding of sugar, and selling it as honey, is not adulterating, and that such men are innocent? Silence upon this question in the *Review* would certainly be "golden;" but I am afraid that, to claim such as the above as *silence*, savors of *brass*. R. F. HOLTERMANN.

Brantford, Can.

There may be a difference of opinion as to whether the advocacy of sugar honey was begun again in the March *Review* from which the quotation was made. However, I have been sorry to see what seems to be a spirit of unfriendliness on the part of Bro. Holtermann toward Bro. Hutchinson. The editor of the *Canadian Bee Journal* has taken issue strongly with the editor of the *Review* on matters entirely foreign to sugar honey. It is not so much *what* Bro. Holtermann said as the way he said it; and it is the *spirit* of his utterances toward Mr. Hutchinson on several questions, especially his rejoinder above, that make me feel a little sad, especially as both are my friends.

Now, understand I am not defending in the least the production or sale of sugar honey; nor am I excusing those who took a part in its early advocacy. As they have of late said little or nothing, it has seemed unwise to belabor them now. There is such a thing as carrying matters of this kind too far, defeating their very object—thus making the opposition more determined to carry its point.

I believe, in the present instance, both parties are perfectly honest in their convictions; and while the one side was too hasty (I do not mean this as a pun) in launching upon the bee-keeping world an untried experiment, and one of doubtful expediency, the other side has erred in being a little too severe in condemning—and persistently condemning—after there was no real occasion for it.

Now, if both sides will drop the matter where it is, with the feeling that the other side was honest in its convictions, the harmony of feeling that formerly existed will be restored.

Although I have had no correspondence with Mr. Hutchinson over the matter, I feel safe in saying that the *Review* will go half way, and more if need be.

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Thou shalt not take the name of the Lord thy God in vain—EXODUS 20:7.

Within ten miles of our place are the great celery and onion gardens of Wean, Horr, Warner & Co. They occupy what was known for years as the "Harrisville Swamp." This swamp one way is about two miles in length. For the past few years it has been reclaimed, and is now one great garden. On the 2d day of June I got away from the office about two o'clock, for a half-holiday. In about an hour I was on the celery-ground. These celery-fields, although but a few miles away from the Creston farm described in this issue, are worked on quite a different plan. The extent of their grounds is so great that the cost would be tremendous for an irrigating-plant, with engine, tank, and pipes, such as the Jordan Brothers use. They have worked for years on the plan of open ditches. These ditches drain the swamp, and during a dry time they carry the water to be used on the beds. I did not notice the width of the beds, or, if you choose, the distance from one irrigating-ditch to another, but I should think the width was about four rods. At this season of the year water is brought in from Killbuck Creek so as to fill the ditches up to within 18 inches or a foot of the surface of the muck. By means of lifting-gates the water can be raised to any height desired.

When I first came on to the ground I noticed with pleasure the groups of men, women, and children scattered here and there. Some of these groups were perhaps a mile away — away off over the level celery-fields — about as level, in fact, as the surface of a lake. While I was deciding which gang to make for first, I noticed a solitary man off in a field by himself, working with a hoe. He was almost a quarter of a mile from anybody else. It seemed a little strange to me that one man should be thus working alone when the whole system of the great farm seemed to be to work in gangs, with an appropriate foreman in charge of each gang. I supposed, however, there was some good reason for so doing, although it stirred somewhat my Yankee curiosity. As I looked at him again I thought, too, he seemed to have a sort of half-hearted manner by the way he used his hoe. He didn't act like the people who worked together in companies. I was going to ask him where I should most likely find the general foreman, with whom I was well acquainted, but he was almost too far away. Finally I caught sight of the man I wanted, driving a gray horse. The horse whisked around at such a rate, however, here and there, that I despaired somewhat of catching him, especially as I had to follow, at least for the greater part, the clay roadways. A year ago it was pretty hard work on a hot day to run a wheel over this soft peat; but I was rejoiced to find on this trip that good hard clay roads had been made—miles of them—to facilitate the moving of their heavy crops. Clay enough is put on top of the peat so that the heaviest-loaded wagon rarely breaks through. In only a few places did I see holes where the wagon-wheels had gone down and stirred up the black muck. Let me say, before I forget it, that this plantation is so extensive that the government bulletin on onion culture, mentioned elsewhere, has several times referred to the great Ohio onion-farm. A year ago some single acres produced more than 1000 bushels of the Yellow Danvers onion.

Before I found my man I got into a group of perhaps 20 or 25 celery-transplanters. Each man had a row on one of the beds I have described. The ground is first thoroughly worked up by horses; then it is rolled smooth, hard, and level. Next a marker goes over, making a perfectly straight furrow where the plants are to be set. Now the men all commence and tramp a row by standing with their feet right across the furrow, and move sidewise from one foot to the other. This packs the soil where the plants are to stand, and raises a little ridge of soil where the toe and heel come. When the ground is all tramped, then each man takes a large stout galvanized iron pail, with a lip to it, and dips water out of the ditches, and pours it into the hard bottom of the little channel where he had just been tramping.* As soon as the water soaks away, the celery-plants are put in. Each man carries his plants in an oblong wooden box made of inch lumber.

Now, I did not say any thing out loud, but I began at once a mental criticism. First, it seemed to me that this tramping could be much more cheaply done by horses and a machine. Then I thought the tin-pail program was a good deal more hard work than the iron pipes and rubber hose used by the Jordan Brothers. Then, again, how much lighter some cheap tin pans or tin basins would be than the great heavy wooden boxes! But just then I caught sight of the gray horse, and put after him with my wheel. Before I caught up with said horse, however, I saw a man coming in a buggy. As the road was a little narrow I prepared to turn out on the muck when I noticed the occupant was Mr. Wean himself—the member of the firm, and the one who has the great Lodi gardens personally in his charge. He told me to run my wheel out among a patch of Early Ohio potatoes, where it would not be run on to by teams, and leave it.

Now you will have to wait, dear reader, until I tell you a little about these Early Ohio potatoes. There was a beautiful stand about knee-high, and Mr. Wean told me they sent clear to Chicago to get a special strain of Early Ohios that were *true to name*. He said they could not afford to fuss with any thing but the very best; for the Early Ohios scattered here and there among our farmers are any thing but pure and of the best strain. Last season they secured almost 400 bushels to the acre of Early Ohio potatoes; and they were all sold at 40 cts. before digging. Mr. Wean told me this while we were sitting in the buggy; then he told me almost enough about their work to make a book, but I can not give you all of it now. When I suggested that machinery might be made that would do the "stomping" he said they had had some expensive machines made, but they did not seem to answer the purpose. Besides, the machine would not always be right where it was wanted. A man has his feet right along with him—that is, generally speaking—and there is no fuss or tinkering for him to get them ready for use. A gang of men do not have to stand and wait for a man to get his feet in working order. Now I tell you, friends, this is a big item. Why, I have sometimes threatened to take all my wheel-hoes and new-fangled cultivators, and put them out of sight somewhere because a man would fuss more in getting one adjusted and fixed to suit him—that is, he would take more time with the thing than to take a common hoe and clean out the crop, especially if it was only a small patch

* On this very soft porous muck, unless the ground were firmed by tramping, the trench would not hold water long enough to give the plants a start. Firming the soil makes it hold moisture.

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of something. Every man, when he goes to the fields, has a hoe, when he does not have a man-weight cultivator or any other sort, with proper knives set at the proper angle to do the job. I was talking with Mr. Wean about this same thing, and asked him if he had tried the Breed weeder on their onion-plants; and he made a remark that I have been thinking of for some time.

"Mr. Root, the best onion-weeder that has ever been invented is a boy."*

When I spoke about carrying water for the ditches, with those big metal pails, he told me that the stout pails were a very plain, simple piece of machinery. I noticed, by the way, they were made so they could not very well get out of order. The men carried them along with them when they went to the fields, and each man could go ahead with his work with his pail, his feet, and his box of celery-plants. Before I said a word about my cheap tin pans he volunteered:

"Those boxes appear heavy to you, no doubt; but when they are soaked with water they keep the plants in beautiful condition. With the cheap light tin pans they would all be dried out and injured more or less."

They work—at least, at this season of the year, with celery-plants taken right from the seed-beds, the beds being in the open air; and with their system, especially with the enormous extent of their grounds, their plan seems to be very complete. By the way, friends, do you notice how differently *bee-keepers* work in attaining the same result? The final result is, of course, nice honey in one-pound sections; but in order to get them, bee-keepers have a system, with hives, and methods of working, which are as far apart as can well be imagined. Each man seems to do best according to the plan he has been working on. Of course, bee-keepers profit by visiting each other and comparing plans; but very often it is better for each to go home and work along pretty much in the same groove he has been working in, and it is pretty much the same with celery-growers.

When I first came on to the grounds I was astonished to see acre after acre of onions as large as my thumb, and fully a foot in height—and this, too, in the fore part of June. Mr. Wean told me there were *180 acres* of these onions. The stand was almost perfect, and yet no thinning had been done. The rows were almost as straight as they could be drawn with a line, even though they extended away off almost to the horizon, as it would seem. As field after field was passed, all looking exactly alike, I burst forth:

"Why, Mr. Wean, one would almost think, from the looks of things, that you had got your onion-seed planted all in one day."

I think he said it took him only a little more than a week, and the drill was set so accurately no thinning was needed at all. One great secret of their success is, they raise their own onion-seed, and it is watched and cared for from the time the very best onions are selected until the time the seed is ready to sow. When I began to think there were no exceptions to this wonderful thrift and perfect stand he pointed out to me a field where their own seed gave out and they were compelled to *buy* some. Oh dear me! what a painful contrast! Now, I have the promise, for another season, of a limited quantity of this same onion-seed, and I am going to offer it for sale. But, mind you, it can not be sold at such prices as we have been paying for a year or two past. And here we found the best weeder in the world, for onions. It was a group of boys, say from ten to fifteen. I guess there were about forty of them in the gang. As I was introduced to the foreman I remarked:

"Mr. Myers, you must be a good man. I judge so from the looks and behavior of these boys."

Mr. Wean then added:

"Mr. Root, you will be pleased to know there is not a bit of swearing or bad talk in this whole crowd."

The boys nearest us heard the remark, and looked up; and you could see by the smiles on their faces that they felt proud of the fact which Mr. Wean had just told me. He says he frequently stops with the boys a little while and gives them a short talk. One day he asked them if any one in the lot knew of a man who was mean and low-lived. I can imagine how the boys would exchange glances at such a question. Probably every boy in the lot could recall to mind such a man.

"Well, boys, that man was a boy once himself. Without question he was a *mean* boy. Probably he was a swearing boy—was dishonest and tricky, and quarreled. Now, you just remember this: It is that sort of boy that makes that sort of man when he grows up."

Mr. Wean will excuse me, I am sure, for having paraphrased his remarks a little after my own fashion. But the boys did not forget his short sermon. As we passed along I asked the question:

"Do you mean, Mr. Wean, that there are no *men* in your various gangs who are swearing men?"

"As a rule there is no swearing on our grounds, although we have between 200 and 300 men, women, and children employed. Of course, such men get in; but if they can not mend their ways we have to get them out. I first deal with them myself. I try them again and again; but when they will not give up such habits we give *them* up. By the way, did you notice one man all by himself, off in the middle of the field, as you came in on to the grounds?"

I told him I did, and wondered what it was for.

"Well, this man is one of the worst. He has promised me to break off from the habit, but he does not do it. The last time I talked with him I sent him back to the gang; but he behaved so ill that a protest came from his fellow-workman, and they asked to be excused from having him in the crowd.* But I had faith in him, and have faith in him yet, and so I set him at work off there where you saw him. He is not worth as much under the circumstances; but, Mr. Root, *men* are of more value than onions or celery."

Oh, dear me! I suppose friend Wean did not

* Please do not understand from my remarks that no wheel weeders and cultivators are used at all on this great onion-farm. At different points I saw men (and women too) running wheel cultivators through the rows; and I was a good deal surprised, and perhaps pleased as well, to notice that they used none of the machines so much advertised in the catalogs and papers. As they use a great number of them, they are cheap home-made affairs, many of the wheels of the machines being only a round piece of board, and the knife is a thin blade of steel, something the shape of a letter U, but flat on the bottom. By drawing the tool back and forth, this steel knife cuts up the weeds and mellows the soil, deep or shallow as the operator wishes, by raising or lowering the handle.

* Look here, friends, how many establishments are there with such a spiritual atmosphere pervading that the men unite mutually in petition to the employer, that a profane man must stop his profanity or be banished from the company? I do not suppose this was any sort of "strike;" but such striking as that—striking for righteousness—speaks of better things in the future.

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guess that he was giving *me* a rebuke just then. Of course, he knew my whole heart and soul were with him in the stand he had taken; but he did not know that my own boys—members of my own Sunday-school class—who were at home picking strawberries at that very time, did not get, perhaps, as many encouraging words as these boys were getting away off here in the swamp. When I asked where the boys lived he replied that most of them came from the country round about; and as I stayed until quitting-time I was pleased to see a light one-horse vehicle, with seats all around the outside, arranged so that one horse could easily trot home with perhaps a dozen of those small boys. They were neatly dressed, faces and hands clean, notwithstanding their occupation, and they did excellent work, and were happy about it. I talked with them, and they told me so. Mr. Wean remarked, as he pushed his fingers around among the onions:

"See here; these boys are not content with simply getting the weeds out. They do a nice job of cultivating and loosening the soil around the plants at the same time. Every boy understands the importance of it, and the girls too, as well as you and I do; and they take pride in seeing the beautiful growth of the beds that they have gone over."

Now, friends, is there any one among you—is there a man, woman, or child, who looks on these pages, who does not know that those boys did better and more valuable work than they would have done if they had been permitted to curse and swear? And it is the same with a gang of men. The men who take God's name in vain, especially those who do it in an idle way, with almost every word they speak, are not, as a rule, good workmen. It is against reason that they should be. The man who takes God's name in vain labors with a blighting curse hanging over him. You can not break God's laws with impunity. "Whatsoever a man soweth, that shall he also reap." And yet why is it that men persist in doing so? Why do they set this bad example before the children? Why do parents permit their children to indulge in this foolish sin that kills both soul and body? When it comes to the care of domestic animals, the man who curses his horse or cow prevents the poor dumb brute from doing its best. The curse really seems to fall on the poor animal. Oh may God help us to hold back this vile filthy current — this blighting stream of evil that seems so continually to break forth where men and boys are congregated together. It goes right along with sabbath desecration. The two are twin evils. Where you find the one, the other follows along. May God help us as a nation and as a people to recognize their blasting influence, and not to cease our warfare against them.

There, I have finished my story, and that, too, without catching up with the "gray horse." Well, Mr. Wean and I found him; and I had not only a pleasant chat with my old neighbor, but with his estimable wife and daughters too; and I assured them that I believed it was not only Mr. Wean but God in his great providence that called them from their home in town into the wide waste of onion and celery fields.

We are getting a very large number of flattering testimonials for the new Weed foundation. Here is a sample of one of them:

The 100 lbs. of new-process foundation, we received about a week ago. It is superfine. We have thoroughly tested it, and find it far superior to any thing else we have ever used in the way of foundation. THE JENNIE ATCHLEY CO.

Beeville, Tex., May 29.

With the potato business and other busy cares, I have not been off on my wheel very much as yet this season; but as I have recently come into possession of a 19½-lb. Remington, I have been waiting anxiously for an opportunity to give it a test. Some of you may say, "Why, Bro. Root, are you setting just the right sort of example before our Young Americas, buying a new wheel every spring?" Well, I was quite well suited with my Rambler; but Ernest had been for some time protesting that it was too light a wheel for such work as I have generally given wheels. Besides, our boy Huber, who is now just thirteen, had been urging for some time that I should get a new one and let him have the Rambler. He weighs just an even hundred pounds. Another thing, Ernest wished to have me test all the new improvements, so that I might be fully up with the times in advising in regard to wheels, so that I might be able to state, from practical experience, whether the wheels of '96 are really any better than their predecessors. Well, this new Remington has at least two very important improvements. The tubing is made large, to give greater strength with the same amount of material. The ball bearings are also made with much larger balls. This, I am satisfied, is an improvement. Another thing, the new machine will climb out of a rut better than any other I have ever had before. Wheelmen as a rule have learned by experience to be careful about following a wagon-track if it sinks much below the general surface of the road. With this wheel I can take risks along this line that I never dared to with any other. This is of special advantage in riding after dark.

When the new wheel arrived, Huber was a good deal more excited than I was, because he knew that, from that time forward, the Rambler was his own property. To show his enthusiasm as well as skill in wheeling he ran and jumped astride the new wheel before he had even had hold of it long enough to know how to handle it. Now, friends, this is a very simple thing. I suppose almost any boy of a dozen years will do it. But just consider a minute. Suppose that, fifty years ago, such a machine had been shown to the people, and some youngster had sprung on to it in that way. The wheel itself can not stand alone at all; but a boy weighing a hundred pounds jumps into the saddle as he would jump on to a colt. According to all supposed laws of gravitation and mechanics, both the boy and the wheel would go rolling and tumbling. Nothing of the kind. The new wheel received the shock with scarcely a shake or tremor; and he sat on it as securely as if he were on a hitching-post. Of course, the moment his foot struck the pedal the wheel was under motion. It went crooked a little for a few yards; but very soon the wheel and the rider were in accord. If the readers of GLEANINGS could see Huber go through with some of his antics on his Rambler, riding first entirely on the crank on one side, with one foot out in the air, then doing the same on the other, then crawling all over the machine, even getting down under the top bar, the wheel meanwhile going as steadily as if it were some old family horse—if our readers, I say, could see him go through these tricks, I would give—oh! a great big lot of——*potatoes*.

Well, I started for the celery-farm of Jordan Brothers & Co., at Creston. I had not visited

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them before, I am ashamed to say, this spring. I knew something what to expect, however, for the season has been exceedingly favorable. I reached there just as the sun stood at the right angle to make the beautiful rows of plants show forth like threads of green and gold, as they extend away off in the distance over more than forty acres of the rich black loam. I have tried to describe the appearance of a celery-farm before; but words do not seem to do it justice. Friend Jordan told me there had been several attempts made to photograph the field; but the camera does seem to "catch-on" to the black earth and brilliant green. Another thing that makes this spot so enchanting is that here this branch of agriculture is carried on with such perfect system and mathematical precision. The plants are raised in the greenhouse, as I have before described; then trained women transplant them into boxes that are afterward set in the outdoor hot-beds and cold-frames. This spring they have discarded cloth, and every thing is covered with glass sashes. When the sun is too hot, the sashes are either whitewashed or covered with shutters. They have "caught on" to the same idea that I expressed in our last issue—close-fitting sashes keep the air and soil damp around the plants better than cloth or any thing else that permits too much air to pass through.

After the plants are sufficiently rooted then they can have air and sun; and they take pains that they are well hardened off in this way before they go to the fields. The ground is marked off with a machine that makes a furrow deep enough to hold a little stream of water. The same machine also fixes the distances the plants are to be placed apart. Each plant, when put out, is a mass of fibrous roots, holding sufficient soil so there is really a little sod of earth and roots attached to each plant. I have mentioned this before; but it will bear telling over again. The result is, that not one in a thousand dies—perhaps not one in ten thousand. In fact, there are no vacancies.

I found quite a gang of men and boys at work, the boys dropping the plants; and each man and boy will set ever so many thousand plants in a day; no matter how hot the sun shines, nor how dry the weather is, a man trained for the business keeps a stream of water constantly, running in the furrow, ahead of each one of the planters. The Golden Self-blanching is at present rather taking the lead for early celery.

THE NEW CELERY CULTURE A SUCCESS.

I am pleased to see that Messrs. Jordan Bros. & Co. have succeeded in making this thing work beautifully; after the experiments of last season, perhaps half an acre is growing in this way. The rows of celery are 7 inches apart, and the plants are 6 inches apart in the row. But the great essential to success is not only plenty of water, but the very richest of compost that can be made. By the way, Jordan Bros. & Co. are purchasing stable manure now from the great cities by the carload. They get it wherever they can find it best and cheapest; and they are working now *entirely* with stable manure, using no chemical fertilizers whatever. And that is just what I expected, for celery-growing especially Great compost heaps as large as a barn were located at different points near the railroad track. The manure and muck are worked over until they are thoroughly decomposed and composted; and then it is spread over their more than sixty acres; but for the new celery culture they work it in tremendous doses. It is almost, both in looks and smell, like an old barnyard. When I was there some of the plants were nearly a foot high; and I expressed some surprise because the weeds had not been cut out so very thoroughly as out on the broad acres where the rows were four or five feet apart.

"Why, Mr. Jordan, don't you want to get this 'pussley' out of here? Surely you don't want the weeds in the way in your *new* celery culture."

"Mr. Root, how much harm can weeds do when the celery-tops get above them and shut out every bit of daylight?"

"Well, I declare! *there* is another new kink after all. This very rich soil, instead of encouraging the weeds, *dis*courages them; for the celery, after it once gets a little ahead, is too much for even 'pussley.'"

Just then a bell rang, and the small boys began to scamper. I supposed it was supper-time, and thought the boys must be hungry; but Mr. Jordan said it was quitting-time, six o'clock. And then it just occurred to me that I had been looking around there, entirely oblivious of the lapse of time, and I was fourteen miles from home. Oh! by the way, there was a little group of boys off a little piece from the rest of the crowd. This group came along a little more leisurely behind the rest; and as they walked on ahead of me, I noticed a peculiar motion in their walk. There was a little bit of swing, such as you often seen girls of twelve or fourteen put on. They walked as if they were swinging their skirts; but there were no skirts at all. They were simply boys' blue overalls. One of them looked around, and then for the first time I noticed that the "boys" were all girls. Now, do not scold. You can not blame the wheels altogether for the bloomer costume. I do not think these girls wore bloomers after all. A year ago I noticed they had girls—that is, small girls—weeding onions, working on their knees astride the rows. The boys got over the plants without mussing them up or breaking them down; but the girls, even though they wore short skirts, evidently did much more damage to the plants. Well, this year they have given up the skirts entirely. I do not know that you can call their clothing bloomers, but it is adapted to their work. If their mothers are poor and needy, they will not need to say, as some others have said, "Why, how much my girls would help if they could work in the onion fields and earn money as the boys do!" Mind you, I am not entirely satisfied that this is just the thing to do; but I am only suggesting. If *my* girls were at work in this way, I should want some good Christian man near by to look after them; and I was glad to note that this crowd of workers were in charge of the senior member of the firm, and I happen to know he is a most excellent and exemplary Christian man.

I think I never climbed the hills—a long string of them that we meet about half way home—with the ease that I did on this trip. My new wheel just bounded up hill and down; and although I have enjoyed beautiful sunsets all my life, I think I never before enjoyed one as I did this time. It was the effects of that wheel-ride. Let me go back. When I first started out that afternoon I did not feel like riding. I went principally because I knew I needed it to start my circulation. After I had ridden two or three miles, had I consulted my feelings at that time I should have said there was not any fun in wheel-riding, after all, and I actually felt as if I should rather go back home. I reached home just as the moon was up, so it was my pleasure to enjoy a sun*set* and a moon*rise*. Oh how things had changed in just one *short* afternoon! Why, I didn't get business arranged so I could get away until almost three o'clock. I felt happy and full of enthusiasm

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until after nine o'clock, and did not have time for my afternoon nap either. Just as I was dropping off into a delicious and peaceful sleep, one of my favorite texts came to mind, and I said aloud, "Surely goodness and mercy shall follow me all the days of my life;" and Mrs. Root, who had not gone to sleep either, responded, "Yes, dear husband, goodness and mercy will follow you if you always hold fast to your Christian faith and hope, and I think you will."

OUR STRAWBERRY REPORT FOR 1896; THE TIMBRELL STRAWBERRY.

Just as we had decided to drop the Timbrell from our list, it transpires that, in consequence of the present favorable season, it is just showing us what it can do. Our rows of Timbrell are not only giving us great quantities of berries, but they are the largest and the most beautifully shaped berry, I think, I ever saw in my life; and, on top of it all, where they are allowed to get fully ripe the greater part of them are nicely colored. By picking out some of the best, I think almost anybody would call it the ideal strawberry; and the flavor of the fully ripened Timbrell is second to none. When they are not fully ripe, or where the ground is not up to a high state of cultivation and richness, the mottled color is still an objection. Now, nobody objects to our Jessie strawberries when they have white tips, or are even white on one side; but the Timbrell has a strange way of looking when it is not colored all over. The white and red give it a mottled appearance, something like cheap calico—yes, and even faded calico at that; and I fear that the Timbrell is to be discarded just on account of this one objection; and yet when it first came out, nobody seemed to notice it very much—just *looks* and nothing else. But when even *one berry* of this sort happens to get into a box with the calico side uppermost, it hurts the appearance, not only of the whole box, but of the entire lot. Good-by, Timbrell.

Now, the Marshall is all right every way—has all the good points of the Timbrell, and none of the objections; but it does not bear *enough* berries—that is, I am afraid it will be an objection, just the same as with our old friend the Gandy. By the way, we begin to think it is a pretty hard matter to beat the Edgar Queen—that is, if you take it all around. The berries are wonderfully large, and there are lots of them, and it holds out well from beginning to end. The objections are, they are not all of a handsome shape. If you do not have perfect varieties near by for fertilization you will have a *terrible* lot of berries, as it is imperfect.

Michel's Early gave us the first berries to put on the market as usual, and they are tiptop every way—perhaps rather small, especially toward the close of the season, but there are not as many of them, by a long way, as there are of the Haverland, that ripens only three or four days later.

The Parker Earle is a splendid berry; but the plants must have plenty of room, the very richest ground, and water in abundance. With all these essentials it is a most magnificent berry in every respect; but if the soil is poor, or water is lacking, the plant seems to get contrary, and gives up. By the way, a great many strawberries will do very much better if you give them plenty of room. Michel's Early, for instance, will make a big mat of plants in almost no time; but to get good large berries, and to get them very early, the plants must be thinned out and the runners kept off.

Take it all in all, for our locality, I believe our old friend the Jessie comes pretty near standing at the head. When we remember that it is a perfect variety, and furnishes pollen both early and late, to fertilize other varieties, it seems too bad that the Jessie, in many localities, is reported almost a failure. With us they are of large size, nice shape, and so sweet that they are nice eating when they are red a little on only one side. In fact, I do not know but I prefer them that way. This makes it a little more tart. The plant has nice foliage, is as free from blight as any, and it seems to me that every strawberry-grower should have at least one patch of Jessies to test. I asked our boys, Frank and Fred, what they thought about it. They said the Jessie and the Bubach together have given us the largest lot of fine berries, year after year, of any thing we have tried. The Bubach has the advantage of coloring all over, while the Jessie is very often white on the under side. During a very wet season the Bubach has troubled us some by rotting, even before they were ripe; but during dry weather we have nothing of the sort. In fact, we have seen nothing of this trouble for the past three seasons, including the present. To have the plant do its best, however, they should be pretty severely thinned, so that each plant may have six or eight inches of room. Thin them out like this, and make the ground exceedingly rich, and you will have berries that are almost like peaches In fact, you can take one of these great big fellows and make several bites of it as you would of a peach.

I think I have touched upon all the strawberries we list, except our old friend the Warfield. This is ahead of all others in color. In fact, the brilliant sparkle of the garnet-colored fruit as it gleams out among the green foliage would almost of itself give it a place among the standard choice berries. No other berry in the world—at least, none that I have ever seen—has so brilliant and deep a color. In my early life as a jeweler I used to have something to do with valuable stones, and the garnet was always my favorite; and I scarcely ever catch sight of the Warfield berries without thinking of a cluster of garnets. Aside from its beauty it has a brisk, sparkling, tart flavor, quite distinct from any other berry. It is also a beautifully shaped berry—there are no awkward monstrosities. Its sole fault is that it is small; but this is generally owing to the fact that it sends out so many runners that the plants stand too thick, even the first season. On that account we get nicer berries from plants set out in the fall. Thin them out till they stand at least five inches apart each way, then give them ground that is made exceedingly rich and mellow, and you will not only have clusters of small garnets, but here and there a great berry that ought to make anybody fall in love with strawberries just to look at. It is an imperfect variety.

Up to the 1st of June we had 10 cents for our berries. They are now 8 cents. With the cool nights we have been having for three or four days past, I think there is not going to be any very great glut in the market. They are ripening so gradually that people manage to take them at fair prices.

It is now June 10, and most of our berries have got past their best, but the Parker Earle is just in its prime. The boys are inclined to think with myself, that, all things considered,

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it rather takes the lead—at least, as it is this season; that is, if I could have only one strawberry, from the present standpoint I am inclined to think *that* one would be the Parker Earle. First, it is a perfect variety; second, it bears *almost* as many berries as even the Haverland—not quite, perhaps, but it comes pretty near it; third, it is handsome, colors up nicely, is of good color, good size, beautiful shape, and in quality is equal to almost any berry we have. Mrs. Root wanted some extra-fine berries because we were going to have company, and I gave her some Parker Earles. She gave me another point in its favor that I had never thought of. It has a long pear-shaped neck—a beautiful glossy neck, and perhaps it is the easiest berry to pull off the stem of any berry grown. This pear-shaped neck tapers down so that the green sepals project out just right to be caught by the fingers. She prepared three quarts for table use in just no time. That same evening a peck of Timbrells was left by mistake after everybody had gone home, and it was Saturday night, so they had to be canned. Well, while the Parker Earle is the nicest berry in existence for preparing for canning, she declared the Timbrell to be the worst. The calyx is tight down to the berry of the Timbrell, and is hard to pull off; in fact, you may have to break the stem, and then pull off the green leaves piece by piece. Now, this is quite an item for the housewife. Right here perhaps I might mention one objection sometimes made to the Parker Earle. It contains a good many seeds, and they are of pretty good size.

I mention these points in detail that you may get a glimpse of how many needful things there are that go to make up the "best strawberry in the world." It is not always a good thing to have strawberries slip *too* easily out of the calyx, because they do not keep nearly as well in that way as when picked with the stems on. And, by the way, the Parker Earle and every other strawberry should be picked by the stems—not clawed off, pulling the berries loose like raspberries, instead of picking them. My opinion is, the Parker Earle is just as good "to stem" as the Shuckless, and I have examined both. Of course, there is complaint that the Parker Earle does not succeed in every locality. I am inclined to think, however, that, if you give it plenty of manure and an abundance of water, with the ground underdrained and all worked up just right, it will always be a success; and when used with other varieties it prolongs the season quite a little. Our folks are now saying they would like to have strawberries the year round. Perhaps we can not very well have that in our climate, but we can greatly prolong the season by planting Michel's Early for first and Parker Earle for last. If any of our readers know of an earlier berry than Michel's Early or a later one than Parker Earle—that is, a real good later one—I should be glad to have a few sample plants. With the abundant rains we have been having for the past three or four days, the prospect is we shall be able to fill orders for plants—at least small orders—by the time this reaches you. This will refer, however, principally to the earlier varieties. The Parker Earle is so "busy" just now ripening its great luscious berries that it has not really time or strength to send out many runners.

There, I hope you have all been enjoying strawberries during the past month as we have been doing here in Medina.

SACALINE.

In answer to several inquiries, I would say that sacaline, at the present writing, even in our rich plant-beds, is only 4 or 5 feet high. I thought if it grew 17 feet, as the catalogs claim, on ordinary ground, possibly it might grow 25 or 30, or possibly as tall as the giant bamboo in Florida, if I put it in the rich plant-beds. Of course, it did not do much last season, but I supposed it was getting rooted; but the present indications are that it will not do much better this year. Perhaps I gave it too good a chance. A plant that I put in hard ground near a slop-drain seems to be of a little healthier color; but none of them so far come anywhere near what the catalogs represent.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

The Cincinnati *Surburban News*, speaking of the book "Domestic Economy," says, "It is the most helpful book of the century, and any one getting and reading it will have more for the money than can be obtained from any other source." We mail it for 40 cts., although it is a dollar book.

THE EARLY PEABODY RED YAM.

Since reducing the price to 25 cts. per 100, there has been a regular stampede for the plants; and we have been behind somewhat in filling orders; but we have just been putting on the glass sashes during the cool weather, and pushing them to their utmost, and shall probably have plenty of plants by the time this reaches you. As they are an early variety they will succeed in most localities if the plants are put out any time between now and the middle of July. Price 25 cts. per 100. If wanted by mail, 50 cts. per 100, postpaid.

THE WHITTAKER ONION.

On page 752 of our issue for Oct. 1, 1895, we find the following in regard to these onions:

> Before pulling-time I noticed from five to seven onions, or a bunch like the one I sent you by mail, apparently lying loose on the bunch of larger ones, the large ones yet green, and the small bunch ripe and ready to pick up, as they were loose, and lay unattached.

Well, this is just the way our Whittakers are behaving now; and as I have never heard of this belonging to any other onion, I think it must be peculiar to these; and we have so many mature ripened small onions or sets that have grown in this way that we offer them for sale at 15 cts. a quart. If wanted by mail, add 10 cts. more for postage and packing. Why, it really reminds one of picking up ripe chestnuts under the trees, to see these dry onions loose and fully ripened up right on top of the ground. It occurs in this way, as nearly as I can discover: When the onion is in rich mellow soil, it divides or breaks up, as it were, in so short a time that some of the divisions get pushed out so that they have no root attachment to the ground; accordingly the onion stops growing, and the top withers down and dries up prematurely. The growing crowds it out so that it finally lies on top beside the growing stalks; and these onions are just right to plant, for they are exactly the same kind I put in the ground last fall. We have now full-sized onions four inches across, and they are still growing. Just imagine a green patch like this, with the ground full of onions, and onions that have stood right there all winter long, and yet not a seed-stalk in the whole patch.

Our White Multipliers are also doing better than they have done before, and some of them are sufficiently mature so that we can furnish mature sets or onions for planting, at the same price as the above.

HOW TO GROW CELERY ANYWHERE.

This comes from Kalamazoo, Mich. It is a book of 112 pages, very coarse print, heavily "leaded," so there is really but a small amount of matter on each page. There are no cuts in the book at all except those loaned the publisher by the manufacturers of agricultural implements. A great part of them come from the Planet Jr. people. The book is neatly bound; and, judging from the price of agricultural books in general, we might expect the price to be 75 cents, or possibly $1.00; but the publishers want $2.25 for it. The book contains a good deal that is valuable. I believe it is clear up to the

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times on celery culture. But the descriptions are exceedingly brief, and one would be hardly likely to understand a great part of it unless he was familiar with the methods used for growing celery on a large scale. For the average novice, Greiner's little book, "Celery for Profit," at 25 cents, will be worth very much more than this $2.25 book. There is an idea in chapter 46 that may be worth the price of the book, in regard to making a machine to mark a place for the plants, to be used in the soft muck. As there is no picture of the device, however, to guide the reader, it is not very clear after all. I will explain it briefly by asking the reader to notice the marking boards we have several times pictured and described in GLEANINGS—in fact, there is one on page 437 of our last issue. Now, on damp earth, when you lift up the board the soil sometimes sticks to the pins. The new arrangement is to have a board with holes where the plants are to be set. Lay the board on top of your celery-bed, and step on it. Now have a marker made so that the proper-sized pins go down through the holes in the board you are standing on. In this way you can make a large number of holes at once. When you lift out your board or machine holding the pegs or dibbles, the soil is not broken up and the surface made uneven, because the board you are standing on keeps it in place. This board also compacts the soil, and answers much the same purpose as tramping with the feet.

There are 62 chapters in the book; but when we remember that some whole chapters contain only eight lines of print, we see the book does not cover so very much ground after all. I know a good many people object to my plan of judging the value of a book from the amount of matter it contains. Notwithstanding, I am quite sure the average gardener, when he pays $2.25 for a book on celery, or on any other subject, will expect more than what can be easily put into a 25-cent pamphlet. The book may be had of the Union Seed Co., Kalamazoo, Mich.

NEW BBULLETINS ON AGRICULTURE.

First we have Bulletin No. 39, from the United States Department of Agriculture, entitled "Onion Culture." This is exceedingly valuable. It is of special value to me because it is written with the sole view of informing the people; and the author, R. L. Watts, has treated the whole matter in a most masterly and unbiased way. All the new varieties are noticed. The descriptions are carefully given, and the methods now employed where onions are raised by the square mile are fully described. He also gives a fair, unbiased opinion of the plan of growing onions by transplanting. Our readers will remember that I have asked in these pages whether anybody could tell me what the real difference is between the white multiplier, potato onions, and shallots. Well, friend Watts straightens it out. He says the yellow and white multipliers are only varieties of the potato onion. The large yellow potato onion, however, seems to be quite distinct from the comparatively small white multiplier. He defines shallots as follows: "They differ from the potato onions in the fact that they throw up an occasional seed-shoot, and also that the bulbs *always* multiply, which is not true of the small potato onions." Let me explain further: Potato onions divide only when you plant a large one. If you plant a small onion, it simply grows large; but the shallots always split up and maltiply, whether you plant large ones or small ones, or whether you plant in spring or fall. Shallots are also the best keeper of any thing I know of in the onion family. They may be kept dry and hard clear over winter, away into June. The white multipliers keep a good deal the same way, but they are not equal to the shallots in this respect. The Whittaker onion that I have spoken of several times seems to be a very large-sized and exceedingly hardy potato onion. It winters far better than any other onion I have seen, short of the Egyptian; at the same time it makes a bulb about as large as the Yellow Globe Danvers.

This onion bulletin may be had on application, by addressing the Secretary of Agriculture, Washington, D. C. Ask for Farmers' Bulletin, No. 39, Onion Culture.

Another valuable bulletin, No. 48, comes from Urbana, Ill. It is entitled, "Composition and Digestibility of Corn Ensilage, Cow-pea Ensilage, Soja-bean Ensilage, and Corn Fodder." From the summary at the end of the book we find that ensilage made from the cow pea furnishes "more protein and total energy than the clover hay."

SEED POTATOES TO BE GIVEN AWAY.

Since our last issue we have given away something over half of the 500 bushels. But we have yet remaining 15 bushels each of the State of Maine and Beauty of Hebron; Monroe Seedling, 43 bushels; Freeman, 73, and Snowflake, 5. The above are all $1 00 per barrel; and we will give one barrel, either whole or made up as you wish, to any person who sends us $1.00 for GLEANINGS, past, present, or future, and GLEANINGS will be sent to any address you choose. Besides the above we have 65 bushels of the new Craig at $2.00 per barrel. You can have half a barrel for every dollar you send us for GLEANINGS, or a whole barrel for every $2.00 sent. Seconds are all gone except 18 bushels of Lee's Favorite. These are 50 cts. per barrel. Two barrels given for every dollar sent us for GLEANINGS. These are not strictly seconds; but they are so badly sprouted, and so soft in consequence of being *early* potatoes, that we put them in at the price of seconds. They will, however, give very good crops if planted at once—whole, sprouts and all. We have done this so many years successfully that we know whereof we write. We also have small lots of the following: White Bliss Triumph, second crop, 1 bushel; price $2.50 per bushel. Livingston's Banner, ½ bushel; Burpee's Extra Early, 2 bushels; Everitt's Six Weeks, ½ bushel; price of the three latter, $1.00 per bushel.

Last, but not least, 1½ bushels of Manum's Enormous. This last barrel reached us somewhere about June 1st, in the best order, firm and solid, almost without sprouts, of any potatoes we ever saw at this season of the year. I do not know how friend Manum manages, or whether it is the *potato* rather than the management. But for a table potato in June they stand almost at the head. Price $2.00 per bushel. With each dollar's worth of the potatoes will be sent GLEANINGS for one year. We can send small lots by mail, of any of the varieties mentioned. Prices are given in our table published in our issue for May 1, page 366.

Maule's Early Thoroughbred, for second crop, is now ready to plant. Price, 1 lb., by mail, postpaid, $1.00; 3 lbs., postpaid, $2.00; ½ peck, by express or freight, $2.00; peck, $3 00; ½ bushel, $5.00; bushel, $8.00; barrel of 11 pecks, $15.00, *and* GLEANINGS *sent one year for every dollar you send us for Maule's Thoroughbred potatoes.* Of course, demand and supply will have to fix, to a certain extent, the price of this new potato. I wish every one who sees this, who has Maule's Thoroughbred *new potatoes* from seed furnished by ourselves or by Wm. Henry Maule, would tell us how many they have, and say what they will take for them. If any other reliable party offers (any quantity of any account) them for sale at any lower figure than I have fixed above, I will meet their prices; but it must be clearly understood that they are *Maule's*, and not any other. Now, if you are sorry you did not plant some of these beautiful potatoes early in the spring, so that you might have some to sell by this time, you can make up for it partially even yet; you can plant them *now* and get a good crop, without any trouble, before frost—that is, unless you are in a *terribly* frosty locality.

SPRAY-PUMPS.

While it is rather late to use spray-pumps for fruit-trees, it is not too late for other purposes, such as spraying potato-vines for bugs. On the second and third cover pages of this issue you will find our line of spray-pumps. Note our low prices on well and cistern pumps. As we have an extra stock of Little Giant and Moherman brass spray-pumps we offer these at the following special prices from now till Aug. 1:

Little Giant at $2.25 each; 3 for $6.00.
Moherman at $2.00 each; 3 for $5 40.

This is without pipe extension, but with two nozzles, both spray and sprinkler. This is an excellent pump for washing buggies, whitewashing chicken-houses, and catching runaway swarms, as well as its legitimate use in spraying trees, shrubs, and vines. Here is a chance to get a bargain.

JAPANESE BUCKWHEAT.

Now is the time for sowing Japanese buckwheat, and we have a good supply of seed which we will sell at the following special prices while the supply lasts: Peck, 25c; ½ bush., 50c; 1 bush., 80c; 2 bush. bag, $1.50; 10 bushels, $7.00. Bag to ship in included in each case.

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Will send queens that are carefully reared from their superior strain of Italians at the following prices:

Tested queens, 80c each; $9.00 per doz. Untested queens, 60c each, $6.00 per doz.

Orders filled by return mail, and satisfaction guaranteed.

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Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by *express*.

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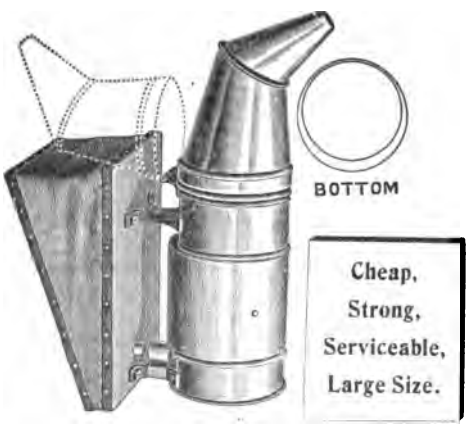

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Have never seen such industrious, energetic bees.—DR. LUTZ.

The best honey-gatherers I have.—
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Warranted queens, 80c each; 3 for $2.00. Select warranted, $1.00 each. Safe arrival and satisfaction guaranteed. Send for circular.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 841 queens.

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Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a fine young Scotch Collie—thoroughbred and pedigreed—for a light shotgun or rifle. WYNN SMITH, Box 245, Aurora, Ill.

WANTED.—To exchange Italian queens for a Clark's cutaway or Acme harrow and crimson clover seed. J. P. MOORE, Morgan, Ky.

WANTED.—To exchange safety bicycles, and an Odell typewriter, for honey, beeswax, or gasoline or kerosene engine. J. A. GREEN, Ottawa, Ill.

WANTED.—To exchange 200 colonies of bees for anything useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—500 L. frames, drawn combs. Will exchange bicycle or money. Describe. Address
W. LA MAR COGGSHALL, West Groton, N. Y.

WANTED.—On account of wife's health, will trade our fine home and one of the best equipped apiaries in the State, for similar property in lower altitude. This is a fine location.
R. C. AIKIN, Loveland, Colo.

WANTED.—To exchange Japanese buckwheat at 75c bush., and comb foundation, for beeswax.
A. P. LAWRENCE, Hickory Corners, Mich.

WANTED.—To exchange untested Italian queens and two-frame nuclei for watch or offers.
W. J. FOREHAND, Ft. Deposit, Ala.

WANTED.—One car of finest-quality sage comb and extracted honey, and several thousand pounds of orange blossom honey. We pay cash on arrival for all goods, and furnish the best of references. Bee-keepers will send samples and give prices.
J. A. BUCHANAN & SONS, Hollidays Cove, W. Va.

WANTED.—A married man Nov. 1st on a small-fruit farm, with experience in apiary, small-fruit culture, and marketing. Give reference. Address
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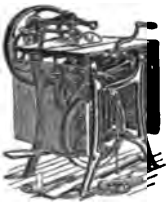

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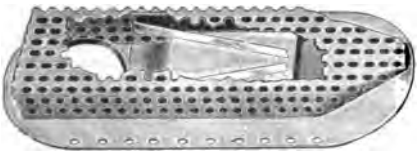

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of 40 pages (to be had for the asking) you will miss it. A full line of best hives and fixtures, adapted to this climate, at prices to suit the times. Also bees and queens of my old reliable strains. My brand of XX white foundation is unsurpassed. I also offer the best brands of polished, one-piece, and poplar sections. If you doubt, just send a trial order and be convinced.

Oldest and largest house in New England—established 1860.

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We have just received a fresh lot of imported queens direct from Italy. They are all young, and came over in unusually good order. Prices are higher now than they will be next month; but first come first served in the choice of the queens.

BUSINESS AT THIS DATE.

We are all up on orders, and are shipping most of them as fast as they come in, or next day. Most departments have been running 11 hours a day during March, April, and May. We are now running 9 hours. Orders keep coming in at a lively rate, and reports come from many localities of flattering prospects for a honey crop. If these prospects continue good, stocks in the hands of bee-keepers should be well used up this season.

CARLOAD ORDERS.

We received order June 1st for the fourth car to Jos. Nysewander, for this season. We shipped the same the next day, and made most of the goods shipped in the car after the order reached us. We have shipped a fifth car to Barteldes & Co., Denver, Col., and expect to ship a fourth this month to Rocky Ford, Col.; also a fourth to Syracuse, N. Y., and a fourth car to St. Paul, Minn. We have taken several contracts for packing-boxes, which will keep our machinery busy for the dull months ahead. All together we are thankful for what the season has brought us in the way of orders.

CREAM SECTIONS.

We offer at special low prices, to close out, the following sections:

50,000 4¼x1⅛, No. 1 white, ex. polis'd, open 2 sides.
10,000 4¼x1¼, " " " " " " 4 "
30,000 4¼x1¾, No. 2, or cream, " " 2 "
20,000 4¼x1¾, " " " " " 4 "
15,000 4¼x1⅞, " " " " " 2 "
20,000 4¼x1¾, " " " " " 4 "

We offer any of the above at $2.00 per 1000; 5000 for $8.00; 10,000 for $15 00. Larger lots at special prices to those interested. If you can use any of these, let us hear from you.

BEESWAX DECLINED AGAIN.

As the season is so nearly over, and the general market continues weak, with declining prices, we mark our quotations down 2c a pound. We now pay, till further notice, 23c cash, 26 trade, for average wax delivered here. We are always ready to receive wax in large or small quantities; but we do wish those who ship would take a little more pains in marking their lot so it may be identified, and write us, at the same time inclosing shipping-receipt, and tell us exact gross and net weights shipped. Scarcely a day passes that we do not receive from one to half a dozen shipments, and not infrequently the package is broken open, and some gone, either lost or stolen. When you give us the weight you shipped, we can make claim for the shortage if there is enough worth while. If you do not take the precautions noted above it may result in loss to you. We have on hand now, and generally have, most of the time, several lots which we can not identify because shipper did not take necessary precaution in shipping.

ANOTHER POWDER-GUN FOR DRY PARIS GREEN.

Hotchkiss Bros., of Wallingford, Ct., have sent us, to test, another powder-gun. This one is rather simpler in some respects than the Leggett, spoken of in a previous issue. Instead of high gearing it has spur-wheels and a chain, something like the chain of a bicycle. I think it runs rather easier than the other; but the arrangement of tubes for putting the Paris green right down on the potatoes, or up on the under side of the leaves, is not as perfect as with the Leggett gun. This, however, could be easily added. The price is only $5.00, while the Leggett is $7.50. The arrangement for gauging the quantity of Paris green to the acre may not be as complete as with the Leggett. It seems, however, so far as we have tried it, to answer every purpose.

DOWN GO THE PRICES!

I am having such good luck in queen-rearing I shall sell our fine **ADELL QUEENS** at the following prices:

One queen, $1.00; three, $2.50; six, $4.50, or one dozen for $8.00. Safe arrival and quality guaranteed. Catalog free.

H. ALLEY, Wenham, Mass.

Carniolan Queens, or Bees

will be sold by the undersigned until first of September, when the breeding season will close.

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Please mention this paper

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Queens reared under the favorable conditions of a honey-flow are **best.** I have a fine lot **ready to mail**; plenty coming on, at 75 cts.; six for $3.75; doz. $6.75; either light or 5 banded. Warranted delivered safe at your P. O.

J. B. CASE, Port Orange, Vol. Co., Fla.

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It is now an easy matter to improve your stock while prices are low and the honey season is on. Good queens, from the best of Italian, pure bred, stock either Leather or Golden. Your choice. My Golden Breeders show all 5-band progeny. Prices as follows: Untested, each, 75 cts.; per doz., $7.00; Tested, $1.00; per doz., $10.00; Breeders, each, $2.00. Reference, The A. I. Root Co.

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WANTED.—To exchange or sell a twenty-inch pony planer.

THE GEO. RALL MFG. CO., Galesville, Wis.

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For particulars see larger ad. on page 406 this paper. Tested queens after June 10th, 75 cents each, 2 for $1.25.

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WANTED.—To exchange young Italian queens, warranted purely mated, for a foundation-mill, bee-books, or offers.

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C. G. MARSH, Belden, Broome Co., N. Y.

VOL. XXIV. JULY 1, 1896. NO. 13

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA, OHIO.

MURRAY-HEISS CLEVELAND O.

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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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E. R. ROOT, Editor of the Apicultural Departments.
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The A. I. Root Co., Medina, Ohio.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

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STRAY STRAWS FROM DR. C. C. MILLER.

DANDELIONS have kept right along blooming till the middle of June. Stop before Christmas, I s'pose.

SWEET CLOVER showed first bloom June 6. Every thing seems in a hurry this year. Linden started to bloom June 12.

NEVER SAW clover bloom more abundant, but up to the middle of June bees need overcoats to work in. Too cool and cloudy. I'm hoping for hot weather.

I DIDN'T KNOW crimson clover would continue in bloom so long. Some that was sown more than a year ago is not quite out of bloom the middle of June.

ONLY 24 colonies out of 149 have started no queen-cells up to the middle of June, with the future to hear from. Of those that started no queen-cells, most were among the weaker; but a few were among the strongest. They had, however, 16 combs each.

C. DAVENPORT, page 456, challenges any T-super filler in the world—beat him two to one with the section-holder. Now, C. D., please give us something relative, not absolute. Say just how many seconds it takes you to fill 240 sections in section-holders ready to put on the hive.

SWEET-CLOVER HONEY is very distinct in flavor. I've been eating it daily for some time, and can speak with some authority. Some like it, some don't. But I think it improves on acquaintance. You can recognize it by the smell. It smells like sweet-clover seed; just a little muddy in appearance.

THOSE DADANTS are wizards. They give their bees plenty of room, and only three to five colonies out of a hundred swarms. I give my bees more room than the Dadants, and they swarm right along—swarm with 16 frames and some of them empty combs. Is it "locality"? [When we give our bees plenty of room it seems to work as the Dadants say. See editorials.—ED.]

I'LL HOLD UP both hands for any organization, new or old, that promises benefit to bee-keepers. I'm not set on amalgamation, but I like to see people reasonable; and when they object to a thing I like to see them give their reasons; and the first reasonable reason against amalgamation remains yet to be given.

HOT WATER may be an excellent thing to take, but for those unaccustomed to it it's a pretty hard dose. Lately I've been taking off the raw edge with a spoonful of honey. It goes down easier, and I doubt whether the honey does any harm. Honey is a different thing from sugar. [The honey will do no harm in your case; but for some others it would open the gates wide for more honey and more sweet of every kind.—ED.]

I'VE DENIED being a contractionist, but I am not sure I can continue the denial. This year my colonies had 16 frames in two stories, and on giving supers I contracted most of them to 8 frames. I believe it was a good thing to give them lots of room before harvest. One colony had 14 frames well filled with brood. Whether it is best to come down to 8 frames at harvest I don't know. [I wish you did know, for that is just what I'd like to know.—ED.]

THE OTHER DAY I left some old black combs out in the rain. When I shook the water out of them it was almost black as ink. If water dissolves the color out of the combs, why won't honey do it in a less degree? I suspect you'll get lighter extracted honey if you keep a set of extracting combs that have never been bred in. [Yes, I believe it is generally understood that old black combs darken the honey somewhat.—ED.]

THE COGGSHALL BEE-BRUSH is a grand thing for a standby. You can brush the last bee off a comb without injuring a queen-cell if you lightly use the tip of the brush. Of course, you can smash with it any queen-cell if you apply the brush flat against the comb. [You are

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right, for I have just been trying it. It was devised by a practical man; and in the way of a bee-brush it beats any thing I ever saw.—ED.]

SAY, ERNEST, are you crazy too? On page 452 you say, "You may advocate an International Bee-keepers' Union, but you can't make bee-keepers on this side of the line accept it." This in the face of the fact that the Union has been international from the start, and never any thing else. Too bad to have you lose your mind. And I thought such a lot of you. [See answer to another straw on this subject.—ED.]

I'M NOT FOOL ENOUGH to mix in that Skylark-Gates fight, page 453; but if I were in Gates' place I'd tell Skylark that deep combs are not the main advantage of box hives, but that box hives are warmer for winter, because not cooled off with a circulating current of air around the frames. And I'd tell him that, by hiving big swarms in little hives with no old comb, I can get whiter sections than he dare get over old black combs.

TIN RABBETS are good, but one thing about them is bad. Bees don't like to put bee-glue on tin as well as on wood, so a line of bee-glue projects all around above the tin against which the end of the top-bar goes; and when you go to lift out a frame this line of bee-glue stops the end of the top-bar, then you pull and it comes up with a jerk, and that makes the bees mad, and sometimes you're fool enough to get mad too. Perhaps the remedy may be in having the tin come up flush with the surface of the wood.—[The remedy is warmer weather; then there will be no snap or jerk.—ED.]

I'M BIASED sometimes, Ernest, but not the way you thought on page 466. I'm not biased in favor of cellar wintering, but stick to it just because I daren't leave it. I can't get rid of the notion that a colony wintered in the free air is tougher than one shut up in a cellar. I'd hate to stay in a cellar five months myself; and if I live to be an old man I hope to learn some way by which I can winter out—I mean the bees, not myself. I just envy you fellows who can winter out. [You can't get "rid of the notion," for there is something substantial to hold it. I have a notion to insure the safe wintering of ten of your colonies right out in your bee-yard—the same put in our chaff hives, and packed as we do it here. If you don't find those bees a little more "frisky" than your indoor bees when brought out in the spring I shall be surprised. By the way, you had better, while you are about it, get George E. Hilton to insure another ten in his hives, in that same yard of yours.—ED.]

I DON'T KNOW, Mr. Editor, whether you realize it; but on page 452 you are striking out a new path, for I think you are the first man to suggest changing the Union so as to make it what is needed. Certainly I think no one has before hinted at changing it from international to national. They've just howled against touching it for fear of making international what has *always* been international. Now, if you can make the Union all that's needed I'm with you. I'll go a step farther than you, and say, let the North American sleep the sleep of the—well, let it sleep. [While we may not agree whether the Union is at present national or not we are a unit in believing that the new organization should be so. So far, so good. Whether I am striking out on a new path matters not so far as I am concerned; but it appears to me that the course suggested is the simplest, and at the same time the most feasible. I should like an expression from our readers, particularly of members of the Union.—ED.]

LOW PRICES ON HONEY AND OTHER PRODUCTS; A REPLY TO MR. DOOLITTLE'S ARTICLE IN THE "PROGRESSIVE."

G. M. Doolittle, in *Progressive*, has "opened fire all along the line" on Skylark. Ostensibly it is directed at "Observer;" but its real objective point is the utter annihilation of Skylark. Listen to friend Doolittle a moment:

On page 108 of the *Progressive Bee-keeper* for April 1, under "Rose Hill Notes," I find Observer indorsing what Skylark said in March 15th GLEANINGS, where said Skylark styles the larger part of our apiarists as lunatics because they are of a communicative turn of mind, and impart knowledge regarding the ways of successful apiculture to others. I do not suppose that friend Leahy knew the full import of what Observer was saying when he allowed that note to go in, for I can not believe that he desires all who read the articles written by myself and others to be maltreated; as an indorsement of Skylark is to indorse such a sentence as this: "Discourage by every means in your power every *would-be* bee-keeper, even if you have to floor him with a skillet."

Since I threw my flag to the breeze with that last quotation inscribed on its ample folds, many bee-keepers have come out and boldly advocated the same doctrine, although they did not advise such general destruction of skillets. Whether it was from a scarcity of the article in their locality, or a fear that some fellow would get a corner on them, I can not tell; but they are virtually with me all the same; and bee-keepers will, in large numbers (notwithstanding their insanity in the Skylark sense), become convinced that I am right. I can not see how I "maltreated" friend Doolittle or any other teacher of apiculture. If he feels hurt because I specifically confined him to skillets I am sorry for it, and I withdraw the limits at once. Skillets, gridirons, rolling-pins, or flat-irons—in fact, any thing he can get his hand on quick, that is harder than an amateur's head, will do. This will relieve friend Doo-

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little's fears that there would be a corner on skillets. Not overproduction, eh? Let us see. Suppose friend Doolittle could just supply his own home market in Borodino, N. Y., at as good prices as he got 25 years ago. He has the whole market to himself, and is getting rich. But he has the bee-fever, and with it the bosom friend that is always by its side—the mania for teaching others. Well, he raises up three competitors who produce, each, as much as he does for the home market. Any one of them can supply it. Is there no overproduction in Borodino? So it is with counties, States, and the whole United States.

Friend Doolittle makes the astounding assertion that the number of farms in the United States remains about the same as it was in 1870; and, therefore, if overproduction of honey causes the low price, there "must be an overproduction of farms," which has caused a shrinkage of 50 to 60 per cent in the price of land. This would be good sound reasoning if the premises were founded on facts; but they are not. Since 1870, more than three million farms have been opened up for cultivation in the United States, besides many millions of acres cleared and brought into cultivation on farms that were in existence in 1870. This would aggregate enough land to make several great States; so I sweep this argument into the Pacific, as it has no grounds to stand on. If the other statistics given by friend Doolittle have no better foundation they are worthless indeed.

He does not take kindly to bee-keepers uniting for their own protection, because it is "not in accord with the greatest good to the greatest number, more properly expressed in loving your neighbor as yourself." Now, if I understand this at all it means that the union of bee-keepers would raise the price of honey, and that would not be the greatest good to the greatest number, and it would not be "loving your neighbor as yourself."

Now, this leads to the legitimate conclusion that friend Doolittle should divide his honey equally among his neighbors, giving each one as much as he keeps himself. If it doesn't mean this, I give it up.

I hope I honor and venerate the religion of Christ, as taught in the New Testament, as sincerely as friend Doolittle; but in no place do I find it the duty of a merchant, though he be a Christian, to take his neighbor into his counting room, show him his books, and prove to him that he had made $10,000 the preceding year, and advise him to go into the same business next door to him. If it is his duty to start Jones on one side of him, he is equally bound to advise Thompson to start on the other, and so on indefinitely until he stuffs the town full of them. This is exactly what bee-keepers are doing.

Some writers come out and say it is not overproduction, but "underconsumption." They are the same thing. Overproduction means that more honey is produced than is consumed. Underconsumption means that less honey is consumed than is produced—a distinction without a difference.

There are five causes apparent to me for the low price of honey:

1. The stoppage of the wheels of industry, and the consequent inability of the poor man to buy any luxury.

2. The glutting of the large city markets, which rule the prices.

3. The perfect helplessness of large producers, who are entirely at the mercy of the commission men.

4. The entire lack of union or combination among bee-keepers.

5. Adulteration, that has disgusted people with honey, or, rather, with the foul imitation.

Four of these causes of low prices can all be removed by union among bee-keepers — a national union and exchange. Let it be broad in its scope of defense and protection to bee-keepers. Let defense and protection mean from any thing that will injure a bee-keeper's interests in his calling. Make it representative, with annual or semi-annual meetings, the commercial or exchange part of it to be run by a board of directors and a manager. Organize unions or exchanges in each State, on the same plan, to be subordinate to the national, and send representatives thereto. Each State exchange should prosecute adulterators and protect bee-keepers within its own borders, the national union standing ready to help any State exchange in case of any extraordinary outlay, such as carrying a case up to the Supreme Court of the United States. Each State should distribute its own honey throughout its own borders, and send its surplus wherever the national might direct. This plan would preserve the social character of the meetings, protect bee-keepers from all wrong, kill adulteration, distribute the honey properly over the country, and give large producers as good a chance to sell as small ones.

First for the State exchange. Dr. Miller, can't you start the ball in Illinois? Two more besides our California exchange will be enough to start a national at Chicago, for sale of honey, and general management. Wake up! Once more I sound the tocsin of alarm—wake up! for the hour of your deliverance is at hand.

CHICAGO AGAIN OPENED UP.

I am happy to announce to my California readers that the market of Chicago is once more opened up to them. Through my intercession and pathetic pleadings I have "melted" Dr. Miller's stone-bound heart, and he has generously given us the half of Chicago. He doesn't say whether it is only for this year

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(while we have no honey) or whether it is permanently ours. You will have to keep wide awake, my friends, for that doctor is a sharper —sharper than you are. He may take back Chicago from you at any time.

"SASSING" EDITORS.

Yes, and that Dr. Miller has commenced to "sass" the editor of the *American Bee Journal*, page 332—and that, too, in his own paper. He even attempts to criticise the editor's language! If an editor can't say just what he pleases, in his own paper, I should like to know what rights he has left. Bro. York, stop his paper and settle him.

NEW CONVERTS.

"Old Subscriber," on page 329, *A. B. J.*, says, "Nary new subscriber will I send for a bee-paper." Now, as Old Subscriber thinks he is sailing under my flag I must tell him he is much mistaken. It is not the bee-papers that make the new converts; it is the everlasting mania of bee-keepers themselves for teaching their neighbors that works their own ruin. For every new convert made by the bee-papers, the bee-keepers themselves make a thousand. If a man picks up a bee-paper and happens to strike one of the Skylark articles he reads it with a hungry heart, and weeps when it is done—that there is no more; but if he runs against "T tins," "Hoffman Frames," or "Large vs. Small Hives," he throws down the book in disgust. It is too dry for *him*. No, no, Old Subscriber, it is not the bee-papers that are to blame; it is you and I, and all of us, that do the converting. Then the fellow wants a bee-paper. Let him have it. A bee-keeper up to the times is much better than a donkey that will ruin the market.

THE ELWOOD DEQUEENING METHOD

FOR THE PREVENTION OF SWARMING; SOME OF THE DIFFICULTIES, AND HOW OVERCOME.

By T. H. Kloer.

During the spring of 1888 Mr. P. H. Elwood presented, for the first time, to the readers of GLEANINGS, the method practiced by himself and Mr. Hetherington, of producing comb honey with colonies of bees which were made queenless, and left in that state for some time. As I had rented a farm for that summer, I hailed with a great deal of satisfaction a plan which promised to do away with the annoyance of voluntary swarming. I studied Elwood's article thoroughly. I had about 100 colonies of bees, and moved them all to the farm. I felt somewhat reluctant about trying the new method; but when swarming began, and the same old trouble of several swarms issuing at the same time, with the incident clustering together in the same place, had worked me up to the requisite pitch of excitement, I determined to make short shrift of the whole business, and dequeen every colony that had not yet swarmed. This I did forthwith.

Your older readers are, I think, mostly conversant with the Elwood method. For the benefit of the more recent beginners I will detail the procedure.

About the time when the colonies become so crowded with bees and honey that there is danger of their getting the swarming-fever, and, preferably, before that troublesome disorder has actually begun to make them dissatisfied, the apiarist hunts up the queen in each hive; he takes one or two combs, with some hatching brood, and adhering bees enough to make a small nucleus, and hangs them in a nucleus hive, which stands near the colony, and the queen is placed on these combs, to be kept in the nucleus until she is needed again. Nine days after this operation, the dequeened hive is carefully gone over and *every* queen-cell removed from the combs. The colony is now *hopelessly queenless*—that is, there remains, at this time, only sealed brood in the hive, from which it is impossible for the bees to raise a queen. In this hopeless state the bees are left for a week or ten days, when the old queen is reintroduced into the hive.

During the 9 days succeeding the removal of the queen, and while the construction of queen-cells goes on, there is no noticeable slacking-up in the work of the bees. They seem to work on, so far as I can see, about as contentedly as if they had their queen among them. But after the destruction of the queen-cells there is a noticeable let-up in the energies of the bees. After the queen has been reintroduced into the hive, and she has been accepted, and has commenced to lay, the bees begin to work with much more energy and vim. There being plenty of empty cells in the combs, the queen can exercise her laying powers to the fullest extent, and all desire to swarm is for the time being expunged. If some honey has accumulated in the cells, from which young bees have emerged, it will be removed by the workers into the sections, to give room to the queen. As the full strength of the colony, excepting the bees taken for the nucleus, has been held together, and even constantly augmented by the hatching brood, the colony is in good condition to store honey. The season of comparative sluggishness during the hopeless period is, under natural swarming, often equaled by the sulkiness of the bees, which sometimes seem to be unable to make up their mind as to whether they want to swarm or not, during which time of indisposition they do no work.

This is an exposition of the method which bear's Mr. Elwood's name, as nearly as I can

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remember, without looking up his original article, and I think I can indorse all the claims he makes for it. However, during the beginning of my practice of it I met a number of difficulties which I had not anticipated. I have often wondered whether I am the only one who has ever attempted to follow Mr. Elwood; for I do not remember ever having read any report of any one having practiced this method on an extensive scale. I should have liked to know whether those who did or do practice it had the same difficulties to overcome that befell me. It has also seemed to me, frequently, that Mr. Elwood omitted to say many things which he should have mentioned, and which would have saved me many a disappointment, and, perhaps, a good many dollars. Or is it possible that his bees act so differently from mine?

The first thing I found out was, that it is necessary to close the entrance of the nucleus hive at the time the queen and her companion workers are placed into it, and leave it closed at least until dark of the first day, or else there is much danger of the queen leaving it, and getting lost, or returning to the hive she was just taken from. The first summer I left all the entrances open, and I found several queens marching around on the ground, followed by a few bees. How they left, whether by swarming out of the bees, and the queen following them, or whether the queen herself became so excited and disgusted with her new quarters and small company that she left of her own accord I can not say, as I never caught them in the act. There were always some bees, the young ones, left in the nucleus; and what old field-bees are put into the nucleus will naturally go back to the hive any way. After I found several queens on the ground (remember, they were all clipped), I examined all the nuclei I had made, up to that time, and found a few more gone. In several instances I found them in the old hive, where they had been well received. In others they were lost. Thereafter I always closed the entrance with a plug made of wire cloth, which is withdrawn the evening of the first day. By next morning the occupants of the nucleus will be sufficiently cooled down to stay. The nuclei should be well shaded, and not made too strong, or there will be danger of smothering.

I have never found any difficulty in destroying all the queen-cells. This is best done on the eighth or ninth day. If done before the eighth day there is some danger of there still being some unsealed larvæ in the hive, from which the bees will raise a little scrub of a worthless queen, which is apt to give trouble. On the ninth day all larvæ are sealed, and the bees will be hopeless if all queen-cells are taken out. I have occasionally had to defer the operation to the tenth day; but then you may expect to find one young queen emerged from her cell, and a number of others ready to do so, even if there were no queen-cells started at the time of dequeening. If there are queen-cells started at the time the queen is removed they should be destroyed, else there is no telling how soon they may not have a queen. Now, as to the way in which I proceed so as to make it a sure thing and get *every* cell:

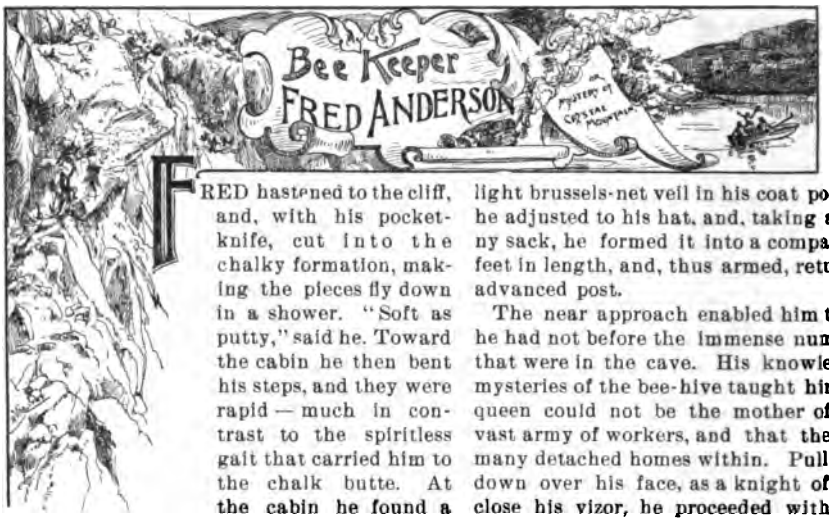
I carry along an empty hive, into which I put all the combs and adhering bees. From this I take the combs one by one, shake most of the bees in front of their hive, and then the eye has a clear sweep of the almost naked comb, and I can pick off every queen-cell without fail—at least, I have never had one escape me in six years' practice. There will be some occasional cells, hardly larger than a drone-cell, but the shape is sufficiently different to betray them. There will be cells stuck away on the sides of the combs next to the end-bars; but the practiced eye will detect them. After each comb has been picked clean of queen-cells it is replaced into the hive, the bees going in at the entrance. I am confident it would be useless to try to get all the cells, with the bees thickly covering the combs, and I surmise that is the way those proceed who report having difficulty in this matter. If only one cell escapes, there will not be any swarming unless it be on the fifth or sixth day after the birth of the young queen, when she leaves the hive to mate. Of this, and of the reason for it, I shall speak later. If more than one cell escapes there is sure to be swarming when you are not expecting it. Hence the importance of making a clean sweep.

The greatest difficulty, and one which nearly knocked me out, lies in the reintroduction of the laying queens, after the colony has been in the hopeless state for a week or ten days, as advised by Mr. Elwood. This subject I shall have to leave for my next article.

Terre Haute, Ind.

[Of late we have not heard very much about the dequeening method as practiced by Mr. Elwood and Capt. Hetherington. Some have tried it, and have given it up as a failure. Some have reported success, but stated they believed they could get more honey by letting their bees swarm. One of our neighbors, Mr. U. Prince, has, if I am correct, practiced the method with much satisfaction for two or three seasons, especially for his outyards, where he can not be present to look for swarms, nor afford to have a man constantly in attendance to catch them when they do come forth. I have always believed myself there was a good deal in the method; and the fact that the two largest apiarists in the world make a success of it year after year is good reason why others on a smaller scale should not condemn it too hastily.—Ed.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.



FRED hastened to the cliff, and, with his pocket-knife, cut into the chalky formation, making the pieces fly down in a shower. "Soft as putty," said he. Toward the cabin he then bent his steps, and they were rapid — much in contrast to the spiritless gait that carried him to the chalk butte. At the cabin he found a mattock and a spade, and was soon back to the cliff again with his tools.

Fred was one of those young men who believe there is a Providence and a guiding hand in all the affairs of life; and if he had been momentarily discouraged it was because he failed to grasp the reason why he had been sent upon this apparent fool's errand. Now he had some faint idea as to why he had been sent here, and at the same time recognized that the plans of the infinite Mind are so great and far-reaching that his own mind could grasp only the little point within the circle of the present day or hour.

"I will serve to-day," said he, "and be happy, and then see what the morrow will bring forth; or, as Alfaretta has it, 'To the night winds let me hark, and hear what they say to me;' " and while divesting himself of coat and vest he found himself singing Alfaretta's well-worn song.

"Now," said Fred, again to himself, "in order to reach those bees I must cut a narrow niche along the face of the cliff; and it seems to me that it will not be a very big job, for it is about as 'slantindicular' as Deacon Jones' gothic roof back in Cornville."

In his strong hands the mattock hacked out a goodly chunk of chalk at every blow. At first his progress was quite rapid, for he merely cut out stepping-places; but after getting to a point above deep water he cut a continuous path, narrow, but ample for safety. After two hours' steady chipping he came so near to the entrance of the cave that the bees began to show signs of aggressiveness; and after receiving a sting he knew the scent of the poison emitted by the heroic bee would attract a score of others; so he wisely withdrew along his narrow path.

Fred, like all traveling bee-keepers, had a light brussels-net veil in his coat pocket. This he adjusted to his hat, and, taking an old gunny sack, he formed it into a compact roll two feet in length, and, thus armed, returned to his advanced post.

The near approach enabled him to realize as he had not before the immense number of bees that were in the cave. His knowledge of the mysteries of the bee-hive taught him that one queen could not be the mother of all of that vast army of workers, and that there must be many detached homes within. Pulling his veil down over his face, as a knight of old would close his vizor, he proceeded with his work. When within a few feet of the entrance of the cave he began to enlarge his path into a wider causeway; and upon a still closer approach a match was applied to the frayed end of his gunny-sack roll, and, under cover of the smoke that rolled up from it, he pushed his path close up to the opening.

Fred was a true bee-keeper, and, under the excitement of the moment, he had forgotten all about his recent troubles and perplexities. Even the fair and mad Alfaretta was forgotten. But what is that? a shout. The hum of the bees was so loud as to nearly drown all other sounds; but there was surely a shout, and then another. Turning his eyes down toward the river below he saw Mr. Buell and wife, and Alfaretta, returning from the day's outing, the latter shouting with mad excitement, and waving a red shawl. Mr. Buell was also evidently interested, and tried to shout some intelligible words to Fred; but the latter, with his head near that vortex of bees, could hear about as well as could a person who is attending a thrashing-machine. He so tried to explain to them, and waved them off with his smoking wand. Seeing the uselessness of the effort, Mr. Buell and family floated on down the river. The red shawl kept waving until the boat was out of sight.

With mixed thoughts of waving signals, dark hair, brown eyes, fair features, humming bees, veils, and smoke, Fred peered into the cave. "Just as I expected," he shouted with enthusiasm. From the opening, three feet in width, the cave enlarged to fully fifteen feet, and of circular form, and fashioned as though, at some remote period, the water had circled around and around here, wearing out not only the main portion of the cave but numerous pockets of varying size, in the sides. These were occupied now by many colonies of bees,

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the combs showing plainly in the large openings; and in several that were separated by only a small space, the combs seemed to merge together in front. The average newspaper correspondent would certainly write up the occupants as one vast swarm of bees, and call upon his imagination for tons of honey; but Fred estimated that there were twenty-five separate colonies. He then set to work to dig through the wall nearest to his path and into the rear of one of those pockets containing bees and honey. In due time he had the satisfaction of opening up the most unique bee-hive he ever manipulated. Securing a large piece of chalk he roughly fashioned it into the semblance of a plate. Now driving the bees back with smoke, and with his jack-knife in hand, he removed a nice comb of honey containing several pounds, placing it carefully upon the plate. The broken walls of the bees' home were repaired temporarily with a few pieces of chalk, and Fred considered his day's work done.

The sun was disappearing beyond the Coast Range, and, gathering up his utensils and plate of honey, he left the scene of his afternoon labors and approached the cabin. The men were busy cooking their evening meal, and did not notice Fred's approach. When he drew near the house he hid his plate of honey under a box, intending to surprise the men when they were ready to eat.

Upon Fred's appearance, Matt Hogan, who was preparing a kettle of beans, commenced his good-natured badinage by shouting, "Is it yerself, Misther Anderson? and how is yer apry? Will ye's market yer crop in Sacramento or San Francisco? Och! a taste of yer honey wud not be amiss to meself, Misther Anderson."

Fred felt quite lively after his afternoon's success, and, indulging the men's vein of humor at his expense, joked with them about his bees and honey.

This being his first experience in a California bachelor's quarters he became interested in their cooking operations. Mr. Ghering had his mind upon some meat that was boiling in a little round-bottomed kettle upon the stove. Matt Hogan had finished preparing his beans, and, in adjusting his kettle, the meat-kettle received a push that revolved it in the griddle-hole, and the water all poured upon the stove-hearth and floor.

"Begorra!" said Matt; "but the top of that stove is too shmall intirely. The kettles won't agraa, Misther Ghering."

"Yes, Matt, they will work if you haff care," said Ghering.

The kettles were adjusted, and more water poured over the meat. The top of the stove was well occupied, for the other ranchmen had each a kettle on the stove—one with prunes boiling, and the other preparing a kettle of mush. The mush man found a little trouble and disappointment when he salted his boiling mess. It foamed nearly to the top of the kettle.

"Well, now, what haff you put into that mush?" said Ghering.

"Blessed if I know," said the man, "if it weren't salt."

"Salt! let me see; that's soda, man. Ha, ha! you spoilt that mess of pudding, and you'll haff to try again. Remember, salt is in the tin with yellow label—soda in the red tin."

"HIS HEART YEARNED AGAIN FOR THE RETURN OF REASON."

About this time there was a strong odor of burning beans.

"Hey, there, Matt," said boss Ghering; "your beans are burning."

Matt sprang forward, overturning the box he was sitting upon, exclaiming, "Arrah, there, now; ye's don't say so;" and he snatched off the cover. "Howly St. Patrick! I covered them banes with a flood of wather, and they have shwelled and shwelled until the wather is all inside them. Me banes! me beautiful banes!" then off came the kettle, hitting the meat-kettle, which turned politely and spilled

the water again on the stove-hearth and floor. "Mother of St. Patrick! but, Misther Ghering, ye's will have to ballast that kettle of yours at the bottom instead of at the top. It's a molty tipsy thing, so it bees. But, Misther Ghering, about me beautiful banes, know, I know, will I have to throw them away, sure?"

"No," said boss Ghering, "there are only a few burned on the bottom; get them out and try again."

Matt followed directions, and soon returned with the beans, with a good supply of water upon them. "Now, Misther Ghering," said he, "ballast that kettle of yours while I navigate me beautiful pot o' banes."

After some minor tribulations supper was placed upon the table, mostly mush and milk, bread, and cold meat, for the boiling viands were in preparation for the next day. When all hands gathered around the table, Matt said, "Now, Misther Anderson, if we only had some of your beautiful honey, in the absence of boother, it would swaten our mouths for the bread and mush to follow. Never, since I kissed me Biddy Malooney good-by in the ould country, have I experienced any swateness. Couldn't ye's now, Misther Anderson, have pity upon me forlorn condition, and change the bitterness of me loife into swateness wid yer honey?"

Fred's only answer was an apparent fit of coughing; and, stepping outside the circle of light, he hastened to the box where he had concealed the honey, secured it, and soon placed it upon the center of the table before the astonished men, exclaiming, "There, Matt Hogan, if your Biddy Malooney is the sweetest girl in old Ireland, this will remind you of her, for it is the sweetest of California honey."

"By the two eyes of St. Patrick!" said Matt; "Misther Ghering, does ye's think me bees awake or adraming? If me bees awake, then, Misther Fred Anderson, ye are a jaynyus. I will give you thanks fur yer compliments to me swateheart, and I'll niver chaff ye's further about yer bees or yer honey; so help me, swate Biddy Malooney."

The conversation for the next hour in the little cabin was all about the bees in the chalk cave, and Fred gave a general lecture upon how to manage bees. These men had never heard that bees could be removed from trees and rocks, and put into hives, and then managed for profit. It was a new revelation to them, and they were deeply interested—the more so, perhaps, because they had the substantial evidence before them in the delicious honey of which they all had eagerly partaken.

Instead of a crack-brained fellow looking for the little honey-bee, the men now looked upon Fred as a "jaynyus," as Matt Hogan expressed it, and there was no more joking upon bees and honey, at his expense.

"And now, Mr. Ghering, and gentlemen," said Fred, "I will tell you my plans in relation to these bees. I have learned there is an old deserted bee-ranch down the river. If I could purchase that cabin and the empty hives I would have a neat apiary on the bluff in a short time. Do any of you gentlemen know if there is an owner of those things, or where I could find out any thing about them?"

"All I know apout the place," said Ghering, "is that a Scotchman, Donald McBurger, ownet the bees. Apout a year later after he had solt his honeys I learned that he was drowned. There was some talk of foul play, and old Jim Dawson, on the opposite site of the rifer, came unter some share of suspicion; but as our rifer population is all the time shifting, and no one knew much of McBurger or where he came from, little nodice was taken of his disappearance, and he would have peen forgotten by this time but for the remains of his bee-boxes. I would advise you to see Dawson; he could probably tell you if there was any owner to the properdy."

"Owner to the propherty!" said Matt; "mind ye's now. Ould Dawson will be making a claim on it if ye's go to him. Be gorry, I'd go right down and take the baa-traps, and ask lave of nobody. When ye's get the baas in the boxes, Misther Fred, ould Dawson or the divil himself wouldn't be afther taking them away from ye's."

"But suppose an owner turned up," said Fred; "then you see I'd be in a dilemma. I should feel a great deal better in possessing a clear title; then I should not be afraid of sheriffs coming down upon me for another man's property. Don't you see, Matt?"

"Oh! yes, Misther Fred. I see it's only a matter of faaling, and I don't faal for constables or baas as much as I do for the honey or me swate Biddy Malooney. Arrah, bys, it's tin o'clock. Let's adjourn the baa-meeting and turn into our bunks. I'll have baas buzzing in me head all night."

Mr. Ghering owned a sort of catamaran, or flatboat; and the next forenoon, Fred, after some delay in repairing it, floated down the river upon his new enterprise. Desiring to obtain all information possible about the property in question he ran his boat up to Buell's landing. Securing his craft he hastened up the winding path to the house. Upon his approach he heard the well-known voice of Alfaretta singing her favorite song. Stepping through the shrubbery he found her sitting beside a rose-bush and weaving the great flowers into a wreath. Fred thought she formed the loveliest picture that eyes ever gazed upon. She was a fitting companion to the delicately tinted roses around her. His heart yearned again for the return of reason into that shapely head. Attracted by the crush of twigs and parting

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bushes, Alfaretta sprang to her feet and gave Fred an effusive greeting, placing the wreath over his shoulder, and dancing around him in an ecstacy of joy. The fragrance of roses and the antics of crazy loveliness were almost overwhelming to Fred, and he was pleased to see Mr. Buell approach.

"Ha, ha! papa, our Fred has returned from heaven. I am rejoicing."

"There, Alfaretta, dear, be quiet," said Mr. Buell; "we all are pleased to see Mr. Anderson." Then addressing Fred he told him that, when Alfaretta saw him upon the side of the cliff among the bees, she became greatly excited, and imagined that he was securing the bees' wings with which to fly away, angel like, to heaven. Such are the vagaries that have possession of her brain. But lunch is ready, Mr. Anderson. You must eat with us, and tell us about your bees;" and Mr. Buell led the way to the house.

Fred again found himself a lecturer upon the management of the busy bee, and his small audience were attentive listeners.

"There, Sarah," said Mr. Buell to his wife; "see how we may study all our lives, and then find in one of our every-day surroundings wonders about which we know so little. Mr. Anderson, you must fit me out with a colony of bees. I wish to study the habits of the little insect."

Mr. Buell could give Fred but little information in relation to the deserted ranch; but he told him to see Mr. Dawson; "and in any transaction you have with him," said he, "you must get it down in writing, for he is a reputed hard character."

With these kindly precautions, with his fragrant wreath of roses, and a waving farewell from Alfaretta, Fred floated on down the river to a new experience with old Dawson.

FOUNDATION STICKING TO SECTIONS.

CRIMSON CLOVER; BASSWOOD; SUMAC; GOOD PROSPECTS IN SOUTHEASTERN OHIO.

By J. A. Golden.

B. Taylor's experience in putting in foundation with the heated plate, page 418, surely does not correspond with that of the mass of bee-keepers; at least, it does not with mine, as I use my "walk-over machine," which is about the same as the Daisy. Having over 500 full-sheeted sections left over from last year, not half a dozen sections were found to have foundation loosened by the freezing; and it is impossible to remove either full sheets or starters from the sections without tearing them to pieces. We use a plate quite hot, as the editor suggests in a footnote. I have put full sheets in sections with the walk-over machine; and after the melted wax has set I have tossed them across the room and burst open the section, and have never yet loosened the foundation from the section.

Last September I sowed a small plot of ground fronting the main street of our village. The soil was fairly good, of course, and the clover came up and was green all winter, and was very attractive to every passer-by. A large board was nailed to a stake, and occupied a place in the center of the plot, with this inscription in large letters printed thereon: "Crimson clover, sown Sept. 15, 1895. One of the best fertilizers known." About the 1st of May the clover had grown from two to three feet high, and people came from quite a distance to see it; and during April I had presented a great many with a little bunch to carry home and set out in their gardens. About the 12th of May the crimson blossoms began to appear; then soon the plot was a grand sight to look upon, right in the center of our beautiful village, and was visited by scores of people who plucked a fragrant blossom; yes, and many were afraid to pluck a blossom for fear of getting stung; for it seemed as if a swarm of bees had clustered on the plot during its blooming. However, we fear its time of blooming is too short for bee-keepers to tie to as a honey-plant alone; however, many farmers say they will sow this season, and we will now encourage the growing of alsike, believing it will be a more permanent source both of hay and nectar.

The long drouth last year killed out about all the white clover in this locality; but during this most favorable season we see it is making its appearance, and doubtless next year there will be an old-time white-clover honey-flow.

Basswood and sumac will be in full bloom by the 15th of June. Bees are quite busy storing surplus; and while other bees are swarming, mine seem to be non-swarmers, and seem to get there in surplus, at this time of writing.

Reinersville, O., June 6.

[Friend G., I am delighted to know that crimson clover has succeeded in Ohio when sown as late as Sept. 15, even though it was on only a small patch of good ground. Our people at the experiment station have made a complete failure of crimson clover; and the reports in our agricultural papers are, so many of them, of failures, that a good many think it will never be practicable. So far as I know, however, where it has been sown with buckwheat it has been a success. You get a crop of honey and a crop of buckwheat in the fall, and you get a crop of honey and a crop of clover

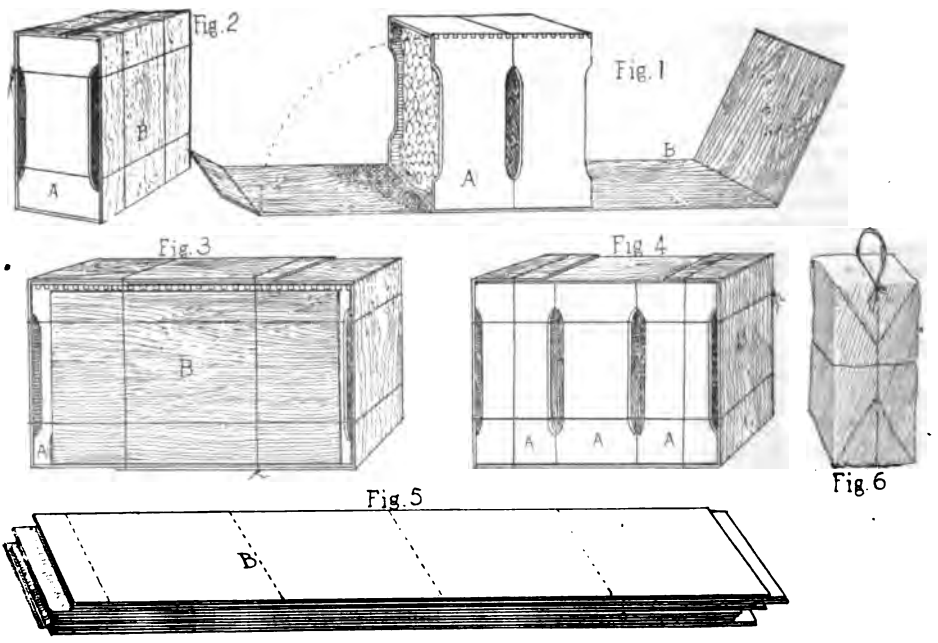
or clover seed, as you choose, in the spring. A great many have succeeded, also, where the seed was sown in standing corn. A little shade, especially if the weather is dry and hot, seems to be a benefit to the clover in starting; and after it gets rooted it makes its growth after the frost has killed the protecting crop or where it has been otherwise removed. I know its time of blooming is short; but if I am correct it comes in at a time when bees get little or nothing from any other source. Perhaps I should mention that it has also been recently brought out by several of our agricultural papers that common red clover sown with buckwheat or in standing corn will also make a stand and winter over; but it is not ready to cut or plow under as early as the crimson. Inasmuch as the winter just past was one of the most severe, especially during the spring months of March and April, I have great faith that crimson clover has come to stay.—A. I. R.]

COMB HONEY IN PACKAGES.

A CHEAP AND EFFECTIVE WAY OF DOING IT FOR RETAILING.

By N. T. Phelps.

Perhaps there are some producers of comb honey who desire a better way to put it up in small packages for retail than they now use. If the plan that I will try to make plain will help them to do so I shall be pleased. It is a most patience-trying thing to see a customer handle a section of nice comb honey like a brickbat—punch his fingers into both sides of it after you have handled it with the utmost care. Many will do that—pinch it to see how hard it is; lay it down on its side in the buggy seat, or push it into an overcoat pocket, and then sit down on it. They come for it afoot or on horseback, in wagons or on bicycles, put it down between their feet or anywhere they can push it in. All of these things make the careful producer's "back hair" pull. There seems to be a need for a good, cheap, and substantial way to put up small quantities to preserve it from being broken until the purchaser can get it to his home. The plan that the writer has used for the last ten years may not be the best or cheapest ever suggested, but it may be convenient for some where the material can be got with little trouble and expense. I think almost any basket-shop will sell the material very cheaply if you will order it at a time when they are the least crowded with other work, say in the winter or early spring. What I use is called "basket-splints" at the shops. The size I use is about 17 inches long, 4¼ inches wide, and $\frac{1}{12}$ inch thick, made from basswood timber. These I score across with the point of a knife so they will bend at the scored places and not break off. To score the splints in the right place I use blocks of thin lumber cut the righ size to score where I want them scored. These blocks I lay on the splints and score along each edge of the blocks with the point of a knife. The number of sections sold is set out and then the splints are scored just right for that number of sections. Then the splints are wrapped around the sections and tied with



PHELPS' BASKET-SPLINT COMB-HONEY PACKAGE.

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twine; then a paper is wrapped around the package and again tied with twine. This makes a good solid package, and the customer can not easily stick his fingers into the honey until it is untied.

Sometimes when I have a little leisure I tie up a number of these packages so a customer does not have to wait for it to be done, and you are not hindered much when you are in a hurry. By putting up packages containing one, two, three, four, five, and six sections each, you will be able, by combining these, to give the customer the exact amount he may want. You can put it up in packages containing an exact amount, as 25-cent, 50-cent, or dollar packages, or almost any other amount, as the sections will vary a little in weight, and you can select the ones that will make it come about even for the price you may need. I sell the most 50-cent and dollar packages.

As you can make this much plainer to the reader than I can, by a cut or two, I have sent sample packages just as I put them up. To be of the most value, a thing of this kind should be just exactly as described. So I have sent you samples just as I put them up, using the same method and material, even to the paper and twine, without any selecting whatever.

You will notice that some of the packages have a convenient handle or bail to carry them by. These are for the "foot-folks" and those on bicycles, or those who go on the train and wish to take a package to a friend. This bail is made by cutting the twine long enough to weave back and forward a few times. It pays to make it easy and convenient for a customer to handle these packages. The customer gets his honey home without breaking the cappings or having any "mess" about it, and is much more likely to want more.

I put up other combinations; but these I send are enough to illustrate the method, and each can make combinations to suit his own case. Sometimes if the sections are not well fastened in, or the customer wishes to carry it a long distance, I cut these "splints" off and make a separator between each section. Some may say this is too much trouble—let the customer take care of it after it is sold to him. I have found it to pay me to be to all this trouble.

Kingsville, Ohio.

[This cheap comb-honey packet I consider as one of the best that has been devised by any one; and I told our artist to spare no pains in showing it up so plainly that any one could catch the plan at a glance.

To Bro. Phelps we owe a vote of thanks for the excellent hints and suggestions he has given. He is one of our bee-keeping friends who is of an inventive turn of mind, and one who in years gone by has given us a number of practical hints. I refer particularly to the Phelps frame-spacer, as illustrated recently and some time ago.—ED.]

THE NON-SWARMING HIVE.

CAN SWARMING BE PREVENTED BY RAISING NO DRONES?

By W. K. Morrison.

This article is for the veterans only: others will please look on. The average bee-man looks on a non-swarming hive as a madman's dream; but the veteran, looking back over the achievements of time, will look with some degree of anxiety to see if the long-looked-for has come at last. My belief is that the thing is within our grasp—almost here. Watt built his engine on Black's "Theory of Latent Heat;" Columbus discovered the New World on the theory that the earth is round; Maxwell's theory of electricity is at the bottom of all the electrical science of the present day; so it becomes me to have a theory too. The theory is simply this: "No swarming without drones." Now, this does not mean that one or two drones may be permitted. Mr. Doolittle says, "Raise a *few* drones." My dictum is, "Raise none—*not one*." Now, this is not so difficult as at first seems to most of your readers. The present spacing of frames or combs from center to center is 1⅜ inches. This has been decided on chiefly because it is Nature's spacing. But what do we wish to copy Nature for? Our entire system of bee culture is the most unnatural thing out. People who wish to follow Nature's way had better let their bees go wild. The great sign of swarming is seeing drones about the hive, either hatched or in the cell state.

Can we stop—in fact, absolutely prevent—the building of drone-cells, and so put it beyond the power of bees to swarm at all? for I conceive that it would be impossible to make bees swarm unless drones were in the hive, in some condition. They seem to say to themselves, "No chance for the young queens to mate, unless drones are in the hive." Mind, too, they do not know that other hives may have drones—they only know what is in *their* hive.

All the spacing of combs in a natural hive proceeds on the idea that room may be needed to make drone comb whenever the bees are so minded. Do we need to follow this rule? Certainly not. The British bee-keepers follow 1¼-inch spacing for brood comb—many do this, I believe, and find it profitable. This does not absolutely prevent the building of drone comb, although it does to some extent. The best authorities say a brood comb is ⅞ inch, and in actual practice it certainly is not more than this, as we shall see presently. I have spaced to some extent as close as 1⅛, and yet the bees suffered no inconvenience—not the slightest; and by making the width of the frame ⅞, one can see that the comb is even a little less than ⅞, and the bees have room to move up and down, back to back, at 1⅛ inches, center to cen-

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ter. This spacing insures beautiful combs, flat as a board—nothing but worker comb.

Yet there still lingers the possibility that drones can be raised around the bottom of the comb, or even in a corner. The only way to prevent absolutely a single drone-cell coming would be to adopt some sort of backing, say wood, for our foundation, and so prevent this undesirable possibility. GLEANINGS contained an account not long ago of foundation that had a wooden backing. This sort of thing ought to be encouraged. We could, by this means, render the production of drones an impossibility.

One easily sees the immense importance of this matter. Complete control of our bees would then be possible. Some of your correspondents talk of hives that secure to them complete control of their bees. They surely do not mean it, as the bees get up and swarm, or raise drones, whenever they are so minded. This question will have to be looked at squarely, and conscientiously worked on by a number of good bee-keepers, to secure tangible results. If the experiment stations would try something of this sort they would deserve more fame than they now receive.

All these discussions about burr and brace combs simply show that the hives containing such are improperly constructed. Thick top-bars are only a makeshift. Put your combs close enough so that the bees do not have to build bridges across to the next comb. Some people seem to think that a bee can reach over about ⅛ inch. I can handle my frames with the same facility that a person handles a book. Formerly I needed a screwdriver to pry every frame apart. It seems to me the whole question of hive-making rests on *accurate* measurement. People think they are wonderfully accurate when they get it down to $\frac{1}{16}$ inch; but is it not probable that a bee looks at $\frac{1}{16}$ with the eye that we do a yard? My measurements of the combs are something like this: Thickness of comb, $\frac{85}{100}$ inch; space required for the body presence of two bees, $\frac{35}{100}$ inch; added together this makes just 1⅛ inches. The bees are wonderful economists, and they abhor more space than this unless drone comb is intended. Finally, if you do not desire swarming (and who does?) don't raise a drone.

I will defer the accouut of my experiments in this line to a future period, hoping that some of your readers will test the matter fully, and report.

Devonshire, Bermuda, June 1.

[Some five years ago, when I advocated self-spacing frames, I concluded from the reports as well as from private experiments we have been making, that the ordinary 1⅛-inch spacing from center to center was too wide; and accordingly I began to advocate the 1⅜ distance, particularly because it seemed to be a compromise between wide spacing and the very narrow 1¼ and 1⅛. At this time I asked for reports from those who had tested the narrow, medium, and wide spacing; and the testimony at that time gathered seemed to show that 1¼ and 1⅛ would largely if not altogether prevent the rearing of drones. It also seemed to show that these narrow spacings were a little too much of a good thing. It appeared also that the 1⅜ was a nice golden mean; and now that self-spacing frames of this width are so generally adopted among progressive bee-keepers it would be difficult if not impossible to get down to narrower distances.

At all events, I should like to hear from our readers who are in position to know whether the entire absence of drones will prevent swarming. I am rather of the opinion that it will not. If it does not *prevent* will it *discourage* swarming? I should like to hear from a number of our readers on these and other points brought out in Mr. Morrison's able and excellent article.—ED.]

SYRIAN BEES.

Question.—Do you keep the Holy-Land bees? and if so how do you like them? Please give us something in GLEANINGS regarding their qualities.

Answer.—The Holy-Land bee is no more and no less than the Syrian bee, which abounds about Jerusalem; hence the name, "Holy Land," as applied to it by many. I have carefully tested these bees; and for this locality I regard them as the poorest of all the bees ever brought to this country. It would look as if nearly every one who has tested them is of the same opinion; for, of late, we see no advertising of these bees, and scarcely a word said about them in any way. The two great faults which make them of little value are, first, not breeding when they should breed, and then breeding beyond measure when they ought to breed but little, which results in few laborers in the field during the honey-harvest, and countless numbers of consumers after the harvest is past, to eat up all the few gathered, consequently giving little or no profit, with a hive short of stores for winter. In all of the colonies I had during the five years I was testing them not one of them had stores enough for winter when October arrived. In a locality where there is a continuous flow of honey from spring to fall, these bees would be of more value; but, unfortunately, very few such localities exist in North America. This securing of the bees at the right time for the honey harvest is, I think, of the utmost importance; and because no certain work can be done along this line with the Syrians was the greatest objection I found to them.

Second, the workers begin to lay eggs as soon as the queen has been from the hive two or three days, whether by swarming or otherwise, so that the combs are often filled with a mul-

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titude of dwarf drones, to the disadvantage of bees, combs, and owner. During my experience with them I found that fertile workers were always present with them, and ready to lay as soon as the queen was out of the hive. At times they sting fearfully; at other times they are nearly as peaceable as the Italians. When queenless they are as vicious as tigers, and often make the bravest beat a hasty retreat. However, they will not venture an attack unless the hive is disturbed, as will the black and hybrid bees; but at times it is almost impossible to manipulate the hives to do what is necessary to be done. Their good qualities were, that they stood our cold winters well, and readily entered the sections when there were sufficient bees to do so, in times of harvest.

SWARMING, NATURAL OR ARTIFICIAL—WHICH?

Question.—I live in the far North, nearly as far as bees can be kept with any profit, and wish to know which will be the most desirable with me—natural or artificial swarming.

Answer.—That depends very largely upon the circumstances and surroundings of the questioner. On one point I believe all are agreed; and that is, that a natural swarm will work with greater energy than that manifested by any swarm made by any plan of man's devising: consequently, natural swarming is preferred by most of our enterprising apiarists. If the swarm is hived on the old stand, and the partly filled sections taken from the old colony and placed on the swarm so as to throw all of the working force of the whole colony into the sections with that ambition that only natural swarming can call forth, it is doubtful whether as much honey can be secured in any other way. Yet if a person does not have bees enough to make a specialty of the business, so it will pay him to be on hand to hive and care for natural swarms, or if so situated that the bees go to the tops of tall trees to cluster, or in swarming are a nuisance to the neighbors, then it is better to make our increase by division, even if we do not secure quite as much honey. As many plans are given in the bee-books, and as every one who keeps bees should have a work on bees, I will not stop to give any plans of artificial increase here.

ROUND PIECES OF WAX AT ENTRANCE.

Question.—While passing around in my apiary the other morning I came across several round caps of wax near the entrance to one of my hives—something I never saw before. What does it denote—that the bees are uncapping honey, that queens are hatching, or what?

Answer.—So far as my observation goes, the finding of such caps signifies that drones are hatching out; for if any one will take the time to examine he will find that the drone, when about to emerge from the cell, bites the cover to the cell entirely off by a smooth cut, while the workers leave only fragments of the cappings of their cell-coverings when hatching. The queen cuts off the capping to her cell the same as does the drone, except, as a rule, a little piece on one side is left which acts like the hinge to a door, the door often closing after the queen has gone out, so that it is a rare thing to see the cover to a queen-cell at the entrance to the hive. When it thus closes the bees often make it fast so the bee-keeper is many times deceived, by thinking the queen has not hatched. It often happens that, as soon as the queen has emerged from her cell, a worker goes in to partake of the royal jelly left in the cell, after which the cell-cover flies back, or is so pushed by the passing bees, when it is waxed fast, and the worker is a prisoner, which has caused many to think that the inmate of the cell was not a queen but a worker; hence they call their colony queenless, and send off for a queen, or write to the bee-papers about the strange phenomenon. These round cappings do not indicate that the bees are uncapping honey, as the cappings of honey-cells are gnawed off in little fragments, and not in the round form spoken of.

H. C. L., Tex.—From what you say, it seems very evident that your bees are starving, and, being short of stores, they necessarily had to destroy or neglect their larvæ, and, as a consequence, you found them carrying them out. The fact that it was very dry, and robbers were about, would point in that direction. If robbers should get into the hives and tear the combs any it would also cause the bees to carry the mutilated young bees out in the way you saw: but the probabilities are that they were starving. Feeding is, of course, the remedy.

J. D., Ohio.—It is not an uncommon thing, when honey granulates, for the thin and watery portion to rise to the top. This is, probably, a part of the honey that is not so well ripened as the rest. The fact that the honey behaved as you say is a good evidence of its purity. Some customers will complain of such honey, and I don't know of any thing you can do except to give them your word of honor that the honey is pure. If that does not satisfy them, tell them to have it analyzed and you will pay the bill if it is not pure.

W. M. C., Cal.—It is impossible to give a definite answer as to how much a swarm of bees weighing a given amount will bring in pounds of honey per day. There are so many conditions to be taken into account, such as the weather, the kind of bees, the strength of the swarm, the source of the honey-flow, and the

strength of it. A good colony, however, will gather from one to five pounds of honey per day from clover in a fair flow, and from one to ten pounds from basswood; and strong colonies have been known to store even as much as twenty pounds in a day. But such instances are exceptional.

THE honey season in California, we are told, is practically a failure all along the line. Eastern honey will have little if any competition from the Pacific coast.

MR. MARTIN BROCKMAN, of 308 Abigail St., Cincinnati, O., has, we are informed, been soliciting consignments of honey. Mr. Byron Walker, after he had, as he thought, taken due precaution as to his commercial standing, filled an order for him for some $73.00 worth of honey. Mr. Brockman, acknowledging the receipt of the honey, stated that it was very satisfactory, and ordered more. Mr. Walker, again making further inquiries, decided not to make the second shipment. After writing him a number of times regarding honey already sent, and getting no response, he received notice from the commercial agencies that Mr. Brockman was irresponsible. Upon Mr. Walker's referring the matter to us we wrote the party, asking him if he had any explanation to make, telling him that, unless he could straighten this matter up, we should be constrained to make the affair public. This was May 28th, and up to this time no reply has been received, either by ourselves or by Mr. Walker.

THE SUGAR-HONEY CONTROVERSY.

The following, in reference to the sugar-honey matter, and the questions at issue between Bro. Holtermann and Bro. Hutchinson are at hand, and will explain themselves.

Friend Ernest:—I am very grateful for your kindness and fairness in defending my honor in this matter of the sugar honey. I think a little explanation on my part may help Bro. Holtermann to see things in a different light, as I see from his letter in last GLEANINGS that he is taking an entirely wrong view of some things. I want to quote the passage at which he took offense; but before doing that I want to quote one that appeared *before* that one did, as it will, I think, put things in a different light. In the December *Review*, 1895, page 348, Mr. Hasty wrote as follows:

The sugar-honey law, which has been offered to two Parliaments in succession, gives itself away by its wording—evidently not so much intended for general enforcement as for a hand y club to hit prominent heretics. Legislate ten years imprisonment for sneezing, and you have things so you can put whom you choose in prison, and leave whom you will at large. The act in question is so draconically worded that the most innocent bee-keeper in the land could be put in prison under it, for no greater crime than feeding sugar to his starving bees to keep them alive over winter. It is not merely selling but producing sugar honey that is made penal; and manifestly every one who feeds syrup early enough to have it finished and sealed produces the article.

In the March *Review* for 1896 appeared the following:

The last number makes a cheerful shout over the passage of the legislation they have been trying for so long, the anti-sugar-honey bill. It has been amended somewhat, it seems; and lack of time, or modesty, or some other reason, keeps them from giving us the text, so we can not see for ourselves just what sort of a looking "critter" it is. I venture to guess that the Solons of the government have given them enlarged penalties against real adulterators and evil-doers, and shorn their power to persecute innocent neighbors. In such a case we may all cheerfully rejoice together.

When I read this last-quoted paragraph I supposed, of course, that, "innocent neighbors" now "free from persecution," meant those who wished to feed their bees sugar to keep them from starving; for it is a fact that, as the act was worded by its originators, it would have been possible to prosecute any one who fed bees sugar for *any* purpose. The act as passed is far different from the way it was originally worded, and contains a proviso that bees may be fed sugar to be used by them as food. If Bro. Holtermann had published the act as *passed*, these misunderstandings would probably have been avoided; but the truth of the matter is, that the act, as passed, is a disappointment to those who urged its passage, and there is evidently no desire on their part to place it before the public. It gives no increased penalties; in fact, it gives nothing not before possessed by the Adulteration of Foods Act, except that sugar honey, or any substance not gathered by the bees from natural sources, is now *mentioned* in the act as an adulteration. Prosecutions under the old act could have been carried on just the same, only it would have been necessary to *prove* that sugar honey was an adulteration; now it won't, because the legislature has said that it is. I inclose a copy of the act as passed, and you can publish it or not, just as you please.

Flint, Mich. W. Z. HUTCHINSON.

The act referred to by Mr. Hutchinson above is as follows:

An Act further to amend the Act respecting the Adulteration of Food, Drugs, and Agricultural Fertilisers.

HER MAJESTY, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

1. The Adulteration Act, chapter 107 of the Revised Statutes, is hereby amended by adding the following section thereto, immediately after section 21:

"21A. The feeding to bees of sugar, glucose, or any other sweet substance other than such as bees gather from natural sources, with the intent that such substance shall be used by bees in the making of honey, or the exposing of any such substance with the said intent, shall be and be deemed a willful adulteration within the meaning of this act; and no honey made by bees, in whole or in part, from any such substances, and no imitation of honey or sugar honey, so called, or other substitute for honey shall be manufactured or produced for sale, or sold or offered for sale in Canada: Provided that this section shall not be interpreted or construed to prevent the giving of sugar in any form to bees, to be consumed by them as food."

OUR OWN APIARY; BASSWOOD HONEY-FLOW.

During this month we have had a number of copious rains; and while the prospects were exceedingly bright before, after each successive shower the chances for a good flow from basswood seemed wellnigh a sure thing. The honey commenced coming again about a week ago, and the flow kept increasing day by day until Monday, the 22nd, when there was an apparent decrease in the flow. It resumed again on the 24th, and is still holding on. The hives were just crowded with honey; even two-frame nuclei, such as we are using for queen-rearing, were gathering till there was not an available cell left for storage. When it

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looked as if the nearly 400 colonies and nuclei, mostly the latter, were about to get ahead of the boys I turned in myself and helped until they could catch up. After the empty combs in reserve gave out, we called upon the factory hands to give us an extra lot of frames filled with foundation. They had what they considered a good stock on hand; but it became necessary to turn in a lot more on short notice. The foreman of one of the departments said to me, as I came up after more frames, "If you had only told me you were going to want so much stuff I would have been ready for you; but as it is, I have had to call in extra help." "Well," said I, "I had no idea myself we would need so much. The bees took us by surprise all around."

By Saturday night, by hard work we managed to give every colony and nucleus room enough and a little to spare. When I first went out into the apiary we were having about six swarms a day; but after we had given them more room, this number was reduced to one a day.

Please understand right here that I do not claim that giving room stops swarming: it simply discourages it—that is all; and, more than all, it prevents the bees from getting into the habit of loafing.

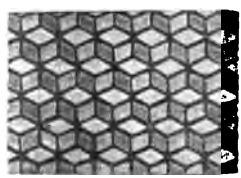
LOAFING BEES.

And that reminds me, that, if the bee-keeper is careless enough to let some of his colonies mope around a day or two for want of room, it is not always easy to get them to start to work again, even when plenty of room is given. Bees are like human beings. After they have had a loafing-spell for a while it is hard work for them to get down to real business again. I am convinced that it is very desirable to keep ahead of the bees—not to let a colony, if it is a possible thing, get inte the loafing-habit. But a lack of room is not the only thing that encourages this tendency. Small entrances or unshaded hives, even when there is plenty of room, will cause bees to cluster out in front, and simply loaf, loaf, loaf.

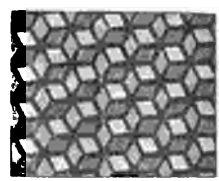
HOW BEES ATTACH THEIR NATURAL BUILT COMB; IS THERE A RIGHT AND WRONG WAY TO HANG FOUNDATION?

During the past year there has been more or less discussion as to which way the bees build comb naturally, that is, whether the two parallel sides of the cells are perpendicular or "slantindicular," as one friend expresses it in Rambler's story. Mr. Danzenbaker, the one who introduced the lock-corner in hives, insisted that the first-mentioned way was the manner in which the bees *always* build their combs; but I showed him, while in the yard, that bees build about as much one way as the other; in fact, it does not seem to make any particular difference to them which way the combs hang. Mr. E. B. Weed, of foundation fame, who is at present experimenting on another invention, has made the observation that the building of combs is dependent largely upon the position of the support. Said he, "The parallel sides of the cells are always drawn out at right angles to the support. If said support is perpendicular, then the parallel sides will hang diagonal. If the support is horizontal, as it is in the majority of cases, then the comb will generally be built with the two parallel sides perpendicular."

Now, you may wonder what practical importance attaches to all this. Bee-keepers have had more or less to say as to which is the proper way to hang foundation in frames or sections. From the observations which we have made, and from the testimony which has come in, I am decidedly of the opinion that it makes no difference. The bees build the foundation just as readily one way as the other. In order that the reader may understand just what is meant by cells with parallel sides perpendicular, and cells the other way, No. 1 shows the first mentioned, and No. 2 the second.



NO. 1.



NO. 2.

Now, perhaps you may raise the question, using all foundation as we do, how we would have a chance to know or see how bees build combs naturally. I am ashamed to confess it, but the bees got ahead of us somewhat in a few cases, and built combs naturally after their own sweet wills, from enamel cloths, from cover-boards, and super-tops, and sometimes from the side of the hive. Each piece of naturally-built comb was carefully inspected, with the results as above indicated.

SMALL STARTERS VS. FULL SHEETS IN SECTIONS.

A fact that is pretty well recognized among comb-honey producers may perhaps be touched upon here by way of confirmation. When we put up supers containing sections for general stock, only small starters are used, for the reason that full sheets would not ship. Well, during the last few days during the pinch we had to use something that was right ready, and accordingly a number of these supers were used; but as soon as our employees in the factory could get at it they fixed up supers containing full sheets. It was evident that the bees accepted the latter much more readily; and it was evident, also, that partly drawn-out sections shaved down *a la* Taylor were much more readily accepted yet. B. Taylor's idea of using natural comb shaved down by means of a comb-leveler is all right.

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FIXED FRAMES.

We have now in the apiary three or four kinds of fixed frames—among them furniture spacing-nails. After having tried them all I fall more and more in love with the Hoffman frames. When they are handled the most is during hot weather, and then they separate very easily—at least, in our locality. In fact, I can handle them and have done so all day without even a screwdriver or pry of any sort, and many of the frames have been in use for four or five years, and in three different localities around about Medina. The Hoffman frames have faults, like every other good thing; but among self-spacing frames I believe *so far* they have the fewest.

BURR-COMBS.

I beg pardon for referring to this stale old subject; but in passing I simply wish to state that this year, like all the other four or five years since we have tested the Hoffman frame and thick-top bars, proves that burr-combs are and can be practically done away with. There are a very few brace-combs; but in comparing the modern thick-top frames with the old-style ⅞x⅜ top-bars—well, I can not imagine how any one can think it preferable to use them. To go back to a burr-comb frame in our case would be like going back to primitive methods, almost as bad as discarding the extractor and comb foundation.

OUR BASSWOOD YARD.

So far only a few colonies are at this place. This morning, June 25, I called at the yard, and found the bees crowding every thing full, just the same as at the home yard, only more so. I had been down and given them extra supers four or five days before. I then strolled through the nearly 4000 basswood-trees, now something over 23 years old, to see how they were budding out. Owing to the swampy nature of the ground, the trees had not blossomed nearly as well as at the home yard; but those that were in full blossom fairly glistened with honey. The few bees at this yard were unable to take care of the flow; so we have arranged to take down quite an instalment of bees from our home yard, right away; for certainly we can not afford to let this sweetness go to waste.

A SWARM IN A DECOY HIVE.

I did not have at the basswood yard any decoy hives specially fixed for the purpose of catching runaway swarms; but, notwithstanding, two or three hives were left containing empty combs, and the covers a little misplaced at the top. In one of these I noticed that bees were flying in and out just as I called at the yard. At first I thought they acted like robbers, though it seemed strange that bees would try to steal right in the height of a basswood flow when the blossoms were fairly glistening with honey. Investigation showed that there were a lot of black bees, and then it popped into my head that this was a runaway swarm from the woods, which, having been allured by the hum of our bees, had taken up their abode in one of our empty hives. I quickly set the hive to rights, opened the lower entrance, and made the bees find it after putting the cover down tight, for it was through the top of the hive that they obtained entrance.

HOW FAR BEES WILL FLY ORDINARILY TO BASSWOOD.

As I said, I strolled not only through the basswood orchard, but *around* it. Our home yard is just a little west of south. Walking along the south side of the orchard I looked carefully through the air, but could not see a single bee going or coming; and although the home bees were only 1½ miles away in a bee-line, it was apparent that they did not know of or care to bother with this mellifluous sweetness that was going to waste in our basswood orchard, or would go to waste unless we put bees there, as we contemplate doing to-night. You will remember that, two years ago, when we were having quite a flow from basswood, not a single bee from our home yard visited this apiary; but there was a small basswood grove half a mile nearer, and in the same direction. It would seem, then, that, for basswood, bees seldom go more than a mile, providing, of course, there is plenty within this range. I imagine that, if we were to cut down every basswood-tree except those in our basswood yard, our home yard bees would soon find said orchard.

MR. YORK, after indorsing the plan advocated in these columns, of making the Bee-keepers' Union distinctly *national*, and a deliberative body having annual meetings, makes a suggestion which I consider a good one. Here it is:

It seems to us it would be a good thing to have a vote taken by the Union *before* the next meeting of the North American, as the result might help in the decision of some things that will likely come up then. Whether the amalgamation project carries or is defeated, it would be well to know the feeling of the Union members on the matter in advance of the North American meeting, to be held in a few months.

SWEET CLOVER FOR 1896.

ALTHOUGH sweet clover has, in the last few years, been spreading enormously along the highways and railroad-cuts, it seems to be making unusual spread and growth this year. The majority of people consider it as a noxious weed, notwithstanding it makes a fine hay for stock, and that it seldom if ever grows on cultivated lands. Its vigorous growth and rapid spread over the country give us hope that it will largely take the place of white clover that seems to have run out for the last four or five years. This year sweet clover follows right on after basswood. Perhaps in many localities it will enable the bees to complete some otherwise unfinished sections.

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OUR HOMES.

And he said unto Jesus, Lord, Remember me when thou comest into thy kingdom.—LUKE 23:42.

May the Holy Spirit direct and guide me, and give me grace and wisdom while I try to unfold the thought that has been in my mind for some days past. I have been assured by many kind friends during these years past that I have a peculiar faculty for making myself understood, especially on some theme where I am greatly interested, and I hope and believe the thought that is before me now interests me *more* than all things else; in fact, I hope it is the great thought and theme of my *life*. Our text gives a hint of it. Let me recall the circumstances:

Two thieves, malefactors or *murderers* they may have been, were being punished for their crimes. In olden times, one manner of punishment in some countries was to nail the criminal fast to a cross of wood. The nails or spikes were driven through his hands and feet. The cross was then set in its place, and he was left there to die slowly by the most excruciating torture. We are told that sometimes the victims remained alive on the cross two or three days. We have not time now to inquire why in that benighted age they thought *torture* a necessary part of legal punishment. At the same time, Jesus was condemned to die, and he was to be crucified with the malefactors. In fact, the Old-Testament prophecy tells us he was to be classed with malefactors, as we read in Mark 15:28, where the writer refers to Isaiah 53:12, where it says, "He was numbered with the transgressors." At that time, as at present, it was customary for people to go long distances to see a man put to death. A few days ago I saw in one of the papers a notice that somewhere in the South, where a man was to be publicly executed, people came from so many miles that the crowd went away up into the thousands. This was the case at the crucifixion; and the sad part of that awful scene—at least the sad part of it to me—is that so few comprehended or cared to comprehend what the offense was that had been committed. You know how poor Pilate stumbled and bungled, and finally in a weak evasive way sanctioned putting the Savior to death. In order that it might be understood, and give the whole transaction a semblance of fairness, it was customary to nail a lettered board on the cross, right over the head of the criminal, telling for what offense he was thus made to suffer. We do not know what was written over the thieves; but Pilate insisted on giving the reason for putting Jesus to death. The only reason he could get from the high-priest was that Jesus had called himself a king, and they made pretense he was to be feared as a rival of Cæsar. John tells us the writing Pilate put on the board was, "Jesus of Nazareth, the king of the Jews." The high-priest objected to this, and wanted Pilate to put it that Jesus *said* he was king, etc. For once in the world, however, even Pilate was stubborn. He replies, "What I have written I have written," and refuses to correct it. I do not know how many present knew of Jesus' life and lifework. They evidently knew something of it, for we gather this from the remarks they made. And, by the way, it seems to have been a custom that, while the culprit was suffering the terrible tortures of the cross, to rail on him, and make him the victim of cruel jokes and taunts. While helpless and suffering they seemed to think it a fit and proper thing to add to his anguish by taunting him with cruel jests and jibes. They brought up what he said about building the temple again in three days, and then threw it up to him, helpless as he was —at least, so far as *they* could see. They said, "Save thyself, and come down from the cross." And even the chief priests themselves mocking him said, "He saved others, himself he can not save." In their hopeless ignorance and terrible depravity of heart, *perhaps* they were honest in this.

And now comes the great lesson that I feel so helpless to teach. The whole wide world, almost, *even now*, are unwilling to accept the thought that there can be a human being, or any being, if you choose, who has *power*, and yet will not use it for self or for selfish purposes. Mankind the world over—at least unconverted humanity—seem loth to believe that there is anybody who loves his neighbor to such an extent that he may forget self, and forget to be selfish. They said to the poor dying Savior, "He trusted in God; let him deliver him now if he will have him." They even *challenged* the great Creator of the universe to change his purpose and plans, that they might believe. We know, however, that it would have made no difference; for when he did come down from the cross they did not believe, but only hated him the more. Let us hold on just a little with this scene before us.

I have written to you one or more times in regard to the gambling mania—the craze that people have to get money or property without earning it. A great lot of people work equally hard for some prize. One gets all of it—the rest get nothing at all; and the one who has it all is supposed to be the happy one. You may tell me that even *Christians* do this same thing. In sadness and sorrow I have to admit that they do; but it is not *because* of their Christianity. It is rather because of the feebleness of their faith and the poorness of their understanding of the Christlike which every Christian ought to have.

A young man in our employ, I was told, was gambling. He and other boys would get together Saturday night after they had received their pay; and before the party broke up, one of the boys had the entire earnings of the crowd for the week. This young man confessed to me that such was the case. I said to him, "Why, John, is it possible that *you* can willingly take the money your comrades have earned, just because the handling of some little pieces of pasteboard makes out that it is your money instead of theirs? Can you sleep nights with the money that they have earned in your pockets? In fact, is it possible that you can be so unmanly and so selfish as to *consent* to take and to *keep* their honest earnings?"

thought I could shame him out of it; but I had to give up. He said he did not see things just as I did, and in a kind of sheepish way tried to defend himself. He soon left my employ, and I do not know where he is now.

Some time ago I was persuaded to let Huber ride his wheel in a juvenile contest. I stipulated, however, that he should receive no prizes for his skill. He thought it was a little hard; but finally, as I explained the matter, he agreed to it. You may think me a queer sort of father when I tell you I felt almost *sorry* to hear that he had won *both* prizes—one for the highest speed, and one as the slowest rider. I think he was awarded a suit of clothes; and great was the astonishment when he refused to take them. One of the prizes, however, was only a bag of doughnuts; and by my permission he accepted these; but I stipulated even then that he should not eat them (not because of conscientious scruples, however, but because I feared they would be indigestible).

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Now, I fear a good many friends think me singular and cranky. Dear brothers and sisters, I have been through some sad experiences in this line. In my early business life, when it was so fashionable to give prizes, I advertised a gift to every customer who expended 25 cts. or more at our store, and a silver watch was one of the prizes. One day a genteel-looking man asked me to put a glass in his watch. As I received the pay I pushed a box of envelopes toward him and asked him to take one. The stranger drew the silver watch. He did not comprehend the matter. When I explained it, and pushed the watch toward him, he refused to take it. I tried to make him understand that it was honestly his. One of the street boys who stood watching comprehended very easily, and said, "Sir, if you do not want the watch, I wish you would give me your chance. *I'll* take it mighty quick."

The stranger replied, "Why, you can have it, certainly, so far as I am concerned. I paid only the usual price for having the glass put in my watch, and I believe it is a good one, and, so far as I can see, this is all I have to do with the whole transaction."

A third party who stood by replied:

"My dear sir, since you have given your chance away, and that boy has the watch, I do not see but you are a party to the gambling business, as you call it, just as much as if you had received the watch and put it into your own pocket."

I can remember even yet the look of dismay and sorrow that came to the good man's face. He said something like this:

"My friends, I am a minister of the gospel. I have never before set foot inside of any kind of gambling-place that I know of. I supposed this was a watchmaker's store, and came in here innocently. I admit that I have been led into taking a chance in a lottery. Perhaps that would be a better word for it. I am sorry I ever came in here; but I certainly did not intend to do any wrong."

At that time I was not a church-member—far from it. I had no faith in any thing unless it was a kind of faith in a devout and praying mother; and through her I had a sort of faith in the religion she professed and lived out. But this minister's words gave me a new glimpse of this whole matter of lotteries, gifts, and things of that sort. I destroyed my envelopes, put away my prizes, and from that time forward I have been content to secure business through the ordinary channels, without the stimulus of something very valuable to the lucky one, and nothing to the others.

Now, what has this to do with this scene of the crucifixion? It has a bearing upon self and selfishness in the human heart. People are astonished even now to see a man refuse to make use of an opportunity for saving himself, or for getting gain when it comes before him, if he can get the thing *legally*. The older readers of GLEANINGS will remember my telling about receiving a shipment of sugar. The railroad company had made a mistake, and did not charge me enough for the freight. I showed it to the agent at our station, and he said:

"Mr. Root, just let the matter drop. If they discover it, of course we will correct it. But take my advice, and let this matter balance up some of the overcharges you have paid in times past."

I told him I could not let it pass that way. On my direction he sent a tracer to correct the charges. In a few days the reply came that the charges were all right. But I saw by a peculiar smile he gave me that he had manipulated things so they would not understand I wanted to pay them some money *back*. The whole matter was so unusual and improbable, that a customer should complain because he had not paid *enough* money, that no one thought of investigating on that other line. I tried again to have the matter corrected, and was finally told that, if I pushed things any further, the clerk who make the blunder would lose his situation—that he was a good man, and had simply made a mistake, and that the only right and Christianlike thing to do was to keep the money right in my pocket, and *keep still*. Friends and foes united in calling A. I. Root a queer sort of crank because he was determined to pay a railroad company *more* money than they had already taken in a little deal. Now, this looks as if I were puffing myself again. Some of you will know that this is not what I am trying to get at. It happened a good many years ago, when I was a bright young Christian. May be I am not as honest now; but the illustration is the very best one that occurs to my mind. The same class of people are around us now that were present at the crucifixion. They laugh and make sport of one who is so cranky that he refuses to take a prize he has drawn in a lottery; and they look in astonishment at a man who refuses to take a bribe—call it a present if you choose—when it is offered to him. A great part of the world seem to be settling down to the conviction that, practically speaking, there are *no* honest men. Sometimes they admit there are a few exceptions. But if this scene were enacted over again that took place about 1867 years ago, I am afraid the verdict would be very much now as it was then. People would say, "Do you mean to tell me that the man who hangs there suffering such excruciating agonies has the power to come down and grind his enemies to powder if he choose to use it? Not much. If he *could* save himself, he would do it mighty quick." And I could imagine the whole crowd of faithless ones jeering and making sport of one poor solitary person who should attempt to defend the suffering Savior. The two thieves, even amid their sufferings, we are told, took part in this talk during that awful scene. Mark says, "And they that were crucified with him reviled him." Matthew says, in describing the same event, "The thieves also, which were crucified with him, cast the same in his teeth;" and this they did, even in their dying agony. It only illustrates how an evil spirit, when it has entered into the heart of a man, may cling to him and urge him to curse and blaspheme, even with the very last breath he draws.

But now we come to a brighter feature—in fact, to the only *hopeful* incident during the whole sad transaction. One of the culprits said, "If thou be the Christ, save thyself and us." I do not think this poor culprit had any comprehension that the man whom they called king of the Jews was or could possibly be the Christ, for it was so exceedingly improbable—at least from *his* point of view—that Christ, the Son of God, should ever consent to undergo such torture. But his companion, it seems, was, even in his anguish, groping blindly toward a dim sort of faith. He said to his companion, "Dost thou not fear God, seeing thou art in the same condemnation?" And then he adds four little words that indicate confession and at least some sort of penitence. He says, "And we indeed justly." He has come to the point where he is fair enough to admit that, so far as they two are concerned, there was no injustice about it. And he adds, "For *we* receive the due reward of our deeds." At this point we can imagine he was looking back over his past life and that of his comrade, for they two had probably been together. He recalls scene by scene some of the terrible crimes, very

likely, as I have said, including *murder*, and admits that their suffering and anguish are only the due reward of sin. Confession and penitence, dear brother and sister, are the first *sure groundwork* of a better life.

We do not know how much the crowd knew in regard to the life of Jesus. The chief priests certainly knew he was innocent. Those who had had a hand in getting up a mock trial knew how shamefully preposterous the whole affair was, from beginning to end. The thousands who had come together from curiosity may have known a little in regard to this. Most of them probably did not care. But this penitent thief said to his companion, "But this man hath done nothing amiss." I can imagine that the poor soul at this point was getting such a glimpse of his own sins that he had almost forgotten his physical anguish. They say drowning men catch at straws. This man was certainly like a drowning man. His case was *hopeless*, and he was *helpless*. If he had any sort of faith in God, he dared not come to him at such a time after such a record. He had broken almost all, and *perhaps* all, of God's commands. There was no chance and no hope. He must hang there, suffering one day, may be two days, and may be three, and then be ushered into the presence of the mighty One whose every command he had broken. He had heard of this man Jesus. The Jews had been saying that he called himself the Son of God. He had heard the few words uttered by this strange being who was for the time classed with the transgressors. He had heard him say, "Father, forgive them, they know not what they do." He had caught glimpses of the human part of our Savior as well as of the divine. Perhaps he begins to have a weak kind of faith in that *kingdom*, so different and so strange—so unlike *earthly* kingdoms; and in his poor weak faith he catches at the last frail straw, as it were. He throws himself into the care and keeping of that stranger. How modestly, and with what trembling faith, he makes his request—"Lord, remember me when thou comest into thy kingdom." I can imagine, dear reader, that, even while he was speaking, a strange peace began to come into his heart, such as he had never known in all his life before, even under the terrible existing circumstances. Human words can not express it. Before the gracious Savior had even time to reply, I can imagine the guilty stains began to be washed away, leaving the poor sin and crime stained soul washed and clean and pure. Christ Jesus came from heaven to earth to save sinners. His lot was cast among sinners. He spent his life pleading with them. Some of the skeptics have said that he was a *disappointed* man. Well might he have been disappointed. The same skeptic, however, had forgotten that the old prophets tell us he was to be "a man of sorrows, and acquainted with grief"—grief because even he, the Son of God, so utterly failed in teaching men how much better are the incorruptible and eternal riches of a clean heart than all the treasures that this earth has to offer. Well, it seems the great God above, in his eternal plan, had arranged that the poor disappointed Son should make one more conquest over evil, and *that* even at the last moment. He grasped the situation, as it were, and replied to the poor penitent sinner, "Verily I say unto thee, To-day shalt thou be with me in paradise." Many who read these words can look back at a time in their lives when the Savior spoke peace and pardon to their souls; and I am sure we shall all remember that period to the last day of our lives. There is nothing like it in the whole line of experience in a human life. My impression is, we *should* think of that period in our lives oftener. We should pray more earnestly to get back to that very startingpoint. At that time, dear brother or sister, the things that this world had to offer you faded into utter insignificance compared with the things pertaining to eternal life. "Why do ye spend money for that which is not bread, and labor for that which satisfieth not?"

Let us take another glimpse. Suppose we could find men for our public offices—suppose we could find men to occupy different positions in the management of the affairs of the great cities—men who had gotten such glimpses of the Christlike life that the bribes and tempting offers would have no effect on them. What would be the effect upon our nation? What a relief it would be to those who are laboring hard, and trying to be honest—to the poor oppressed farmers who are paying the taxes—if they knew that the men who take charge of all this money and property were men who are devoted soul and body to the bettering of mankind—that they were men who feel that they were sent here on earth to help sinners out of darkness and into life, and who feel that every thought and act in life are under the careful scrutiny of the eye of the Almighty, and who would conduct themselves accordingly!

And finally, dear reader, are you not ready to say as did this poor sinner on the cross, "Lord, remember me when thou comest into thy kingdom"? If you have been disappointed, and if you have been discouraged, oh let me, I beg of you, persuade you to choose Christ Jesus as *your* advocate before the throne of God, and trust your life and affairs in *his* care and keeping; and a new life, bright and joyous, full of hope and peace—a life that shall *never* end—shall open up before you, and continue so long as *you* continue faithful on your part.

DAN WHITE'S SYSTEM OF GROWING STRAWBERRIES.

If you will turn to page 782, Oct. 15, 1895, you will find a description and diagram of the above. All along during strawberry time I had been thinking of that model plantation of Gandies; but I could not get time to go over and take a look at it until our own picking began to slacken up. Just about this time the following came to hand:

I am now picking my Gandy berries. I send them to Cleveland, and they net me 12¼ cts per quart. My raspberry-field is a grand sight, and promises a big yield. Bees are working nicely on clover, and we have extra prospects for a good season.

New London, O., June 12. DAN WHITE.

I hastily made arrangements with the boys to take care of what strawberries there would be next day, Saturday, and in due time I fetched up at Mr. White's pleasant home. He was off to town with berries; but his hired man showed me around, and gave me all the pointers. The patch had just been pretty well picked, so I did not see many of the finest berries; but it was kept in apple-pie order, and it had already given a very satisfactory yield at that date, June 13. This was about two weeks ahead of the time the Gandies usually ripen. But almost every thing is that much in advance this present season. In one place there was a row or two that showed something that was

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not exactly blight; but the foliage looked as though it was burned by the sun. The hired man explained that this was where Mr. White put on heavy doses of nitrate of soda. I inquired if he tried light doses as well as heavy ones, and was told he did; but, as with my own experiments, the nitrate had done no good anywhere in any sort of dose, and in heavy doses it had done harm without question.

In due time Mr. White returned, and we had a big time comparing notes, etc. He has a great deal more ground in raspberries than in strawberries. In fact, I believe there are now five or six acres. Some of the earliest were just beginning to get ripe. The crop promises to be immense. We looked over carefully a single row of Gaults, and compared them with the others. There is not as much fruit set for the first crop as on several other kinds; but he thinks it may have been somewhat owing to the fact that they were crowded for young plants.

After dinner he very kindly took his horse and buggy, and we made a flying trip to friend Gault's home. Here we saw Gault raspberries loaded with fruit, by the acre. As Mr. G. was not at home we looked over the grounds as well as we could by ourselves. As I was nearly forty miles from home, we could not take very much time. The Gault raspberry certainly promises a big crop, even from the first fruiting, to say nothing of the crop from the new wood, that is to continue till frost. It looks now, however, as if there were going to be one defect in the Gaults. A good many of the berries are imperfect—some of them gnarly. But of course there were here and there extra-large berries—a sort of double berry or monstrosity. These, of course, are all right; but it breaks up the uniformity that we see in size and shape in some of our very best berries. The Gaults on our own home plantation are this year going to give a large crop; but there is more or less of the same trouble mentioned above. When we get them into market, however, we can tell better about it.

On the way home we took a look through the poultry establishment of Charles McClave, of New London. This man has deservedly won a wide reputation for fine exhibition fowls. We saw every thing in the way of poultry, ducks, and geese, and even some beautiful imported swans, costing, I am told, away up into the hundreds.

Even though I began to urge that it was getting toward 4 o'clock, and that I wanted to make Medina before dark, friend W. said I must take just ten minutes to see another everbearing raspberry growing in a garden in New London. The owner was away, but we obtained permission to look at the berries. This berry has a yellow or orange color when ripe, and most deliciously flavored we found it. It bears fruit both on the old and new canes, and propagates by the tips, and also sends up plants as do the red raspberries. The amount of fruit already set, and the blossoms for more, promise a tremendous yield. My impression is, however, they will not be as large as the Cuthbert and some of our red raspberries. The owner obtained his plants from away up somewhere in the northern part of Michigan. A relative of his who was visiting him was asked to look at his Gault raspberries. The relative then replied that he himself was growing everbearing raspberries by the acre, and promised to send some plants. It looks to me very much like some sort of raspberries that I saw in the woods in the northern part of Michigan some years ago. I found the fruit quite late in the fall, and was assured it kept bearing until frost. After I came home I wrote a card asking the address of the owner of this everbearing yellow raspberry. Here is the reply:

O. E. Hemenway is the man who has the raspberries you ask about. The Gandies are giving 72 qts. each morning, with prospects of keeping it up the week out. DAN WHITE.

New London, O., June 16.

A VISIT TO THE OHIO AGRICULTURAL EXPERIMENT STATION.

After writing what I have about the Great American strawberry I felt anxious to visit our station and ask friend Green what he knew about it. The result was, that, on the afternoon of Thursday, June 18, I started off on my wheel. As there was a brisk north wind blowing against my back, I reached Wooster easily before dark. Finding Prof. Green absent I was most graciously received and shown over the grounds by our good friend Prof. Thorn. At this time of the year their greenhouses are almost entirely occupied in growing tomatoes. The plants were in the sub-irrigated benches with not more than 4 inches of dirt to grow in; and it seemed to me they stood almost as close as we plant potatoes under glass—that is, a foot from center to center. Perhaps the tomato-plants, however, were a foot and a half apart. Each plant was trained so it would make one single vine, and this ran clear up to the glass, sometimes four or five feet. All side-shoots were clipped off; but the beautiful large tomatoes, some of them ripe and ready to gather, were strung along these single-vine plants in a way that would almost call forth exclamations of wonder and surprise from any gardener or anybody else who loves to see beautiful tomatoes growing. It seemed to me almost like enchantment to see such a wonderful amount of fruit in such a shallow bed of soil; and the whole range of greenhouses contained a perfect stand, and was a perfect success from beginning to end.

Perhaps I should explain that I got my glimpse of this wonderful sight in the way of gardening under glass about 5 o'clock in the morning. I chanced to be on hand just as the janitor was opening up and sweeping out. After breakfast, Prof. Thorn took me, together with Mrs. Thorn, in his buggy, and we had a most delightful drive. First we went through the great barn just constructed for the convenience of that wonderful experiment farm of toward a thousand acres. The barn not only contains ample storage room for all the crops they will be likely to raise, but it contains all the latest improved machinery for moving the product quickly to any part of the barn where the crop is to be stored. Besides this, right inside of the same barn is a thrashing-machine, ensilage-cutter, and, in short, all the improved agricultural machinery needed to take care of the crops in the best manner. A little steam-engine in the dairy-room, only just separated from the barn, furnishes power, which is transmitted by an endless rope belt.

I can hardly take space here to tell you about thy various forage crops and experiments with the fertilizers. One fact, however, was brought out very sharply and clearly; viz.: A great many valuable fertilizers like nitrate of soda, potash, and other chemicals, may not produce any effect whatever when used *alone;* but when supplemented by other needful fertilizers the result is very decided and clear. Dan White and myself saw no effect from the use of nitrate of soda when used by itself, and the same result we see here. When combined, however, with phosphoric acid and potash, it produces positive results on corn, wheat, potatoes, etc., without question; but whether the benefit is

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sufficient to pay for these expensive fertilizers depends entirely on what the crops will bring in the market. The experiments at our Ohio station have shown most clearly, again and again, that the farmer can not afford to buy fertilizers at present prices for either corn, wheat, or potatoes, unless these crops bring better prices than they do *now*. If you are going to raise potatoes for seed, and expect to get a dollar a bushel or more, you may use fertilizers at a very good profit, and the same with wheat or corn. If you are a market-gardener, and sell your corn green at so much a dozen ears, it is also quite likely to give back the money you have paid for fertilizers.

A great many curious and unexpected results are brought out by these experiments. For instance, the amount of rainfall may change the whole matter of using fertilizers from profit to loss or *vice versa*. Again, where clover and timothy are put in with the grain, the fertilizer may, under some circumstances, stimulate the clover and timothy to such an extent as to choke the grain and cut off the crop. Again, the chemicals may be used with no profit to the crop to which they are applied. But the increased growth of the crop on the ground the year after may be enough to pay for the fertilizer.

At one point I saw a plot of oats showing such beautiful dark green, and such luxuriant growth, that I was just ready to ask the question, "What fertilizer produced such a wonderful result on this little plot?" Friends Thorn and Hickman both laughed as they told me that the piece of ground last year gave a large crop of cow peas; and even after the crop was taken off entirely, the nitrogen it gathered and stored up in the soil produced the wonderful result right before them. This gave us a bright glimpse of the future that lies before us in the line of clovers, beans, peas, etc.

Crimson clover so far has been almost a failure on the experiment farm; but I believe they are going to succeed with it even yet. With American-grown seed put in among early corn, say during the last of July or first of August, I think they will get a stand that will stay through the winter.

In speaking of Terry's bad luck with chemicals Prof. Thorn laughingly remarked something like this:

"Mr. Root, I can make chemicals give a good result right on that very same farm of T. B. Terry's."

"Why, how will you do it?"

"Well, I would just *stop raising clover*—that's all.

Then we had a big laugh. The point is, Terry gets his fertilizers in clover instead of buying them in bags; and the clover produces the same result so exactly that chemicals, when applied to his clover-fertilized soil produce no result whatever.

Just one more point: In looking over the different plats, one plat showed a very good stand of wheat, notwithstanding the white board in front of it bore the inscription, "Nothing." When I said, "How is this?" Prof. Green explained that the strip of wheat was grown on ground that produced potatoes the year before. The adjoining strips of wheat marked "Nothing," that were so poor, did not have any potatoes to go before them. "But," suggested I, "you put some chemicals on the potatoes did you not?"

"Nothing at all; and this experiment was made expressly to show that a better crop of wheat is secured where potatoes preceded the wheat than where no potatoes were grown at all."

Now, this, you see, is another of Terry's strong holds—having wheat follow potatoes invariably.

By this time we had reached the fruit and berry plantation away up on the summit of one of the highest hills in the State of Ohio. Prof. Thorn told me this point was fully 200 feet above Killbuck River where it runs through the town of Wooster. As we approached the summit I was obliged to laugh to see how the land was cut and gullied and washed right through on our experiment farm. I did not mean to laugh at anybody's misfortunes, mind you; but it occurred to me that our professors would be obliged now to solve one of the most important problems before our State and many others a little further south—preventing the wash and cutting-down of some of our most fertile soils as soon as the land is plowed and worked up fine and loose. You may suggest underdrains; but these are not sufficient. There must be some special management; and, if I am correct, our professors have not decided yet just what course they will take. I am sure they will master the difficulty in time, however. This sandy loam on the summit of this high ground here seems to be the ideal soil for all kinds of fruit, especially raspberries. I never before in my life saw such tremendous yields exceedingly large fine berries are due much to of massive fruit as I saw here. Doubtless the the new and improved varieties. I will not attempt to name all of them, because it will soon be forthcoming in their report. Prof. Green gave me on a slip of paper the name of one of the best of the black-caps—the Eureka. Among the novelties in the way of strange and new fruits there are a good many that amount to little or nothing. There are, however, a few that promise to pay for all the time and trouble expended in getting them. Prominent among them I want to speak of the Success Juneberry. These are certainly as luscious as huckleberries. They are borne in great profusion, and the bushes may be grown as easily as currants. This has been true on our grounds as well as at the Experiment Station.

I wish I had space to tell you all about the new varieties of strawberries. They had there on the grounds almost every thing that has been mentioned in print or in any catalog; and while a great many of the new ones are grand berries, there are only a very few, comparatively, that Prof. Green thought sufficiently better than the well-known ones to entitle them to a place. By the way, he tells me the Great American I have mentioned elsewhere is probably not, from my description, the genuine Great American. He says there is very much confusion indeed by having several varieties of the same name, and also several names for the same variety, or something so near it no one can tell the difference. He suggested that the big berry I got from my neighbor might have been the Sharpless, after all. Its lateness may be accounted for by the difference in locality, even though less than a quarter of a mile away; and then he pointed out to me the fact that the lower end of their trial strawberry-grounds was almost a week later in ripening, although the rows were only a few rods long. He could give no reason for this; therefore, before you invest in Great American, you had better wait for my report another season.

Among the valuable new sorts he gives the Brandywine great prominence, as, I believe, does almost everybody who has tried it. They were picking and selling baskets of great berries while I was there, for only $2.00 a bushel. They would have brought almost twice that on the Medina market. Perhaps the Wm. Belt

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should also be put beside the Brandywine as an extra-good late berry. The above two are perfect-blossoming. He also recommends the Bisel and a berry labeled Jerry Rusk; and he thought it worth while for me to test the berry called Carrie. This is a good medium berry. The three former are all late.

I want to put in a good word right here for the Marshall strawberry. A large bed of Marshalls that commenced giving a crop for early market in April (under glass) has given more or less berries right along every day since, and we are getting some extra-fine specimens from the same bed to-day, June 25.

Among blackberries he advised me to try the Early King. They have also an unnamed strawberry as early as Michel's Early, perfect blossoms, but it bears fully twice as many berries. This, certainly, will be an acquisition, for all our extra-early berries so far have been very poor yielders.

"THE BEST STRAWBERRY IN THE WORLD."

In our issue for June 15 we were inclined to give the Jessie the palm for being the best strawberry if we could have only one of all that are before the world now. Later on we were inclined to change our decision and give our preference to the Parker Earle. Well, just after our last issue had gone to press, I think it was June 12, I happened to remark to the wife of a neighbor that our nice strawberries were all gone. I was just on my way over to the house to take my before-dinner nap. After waking up and rubbing my eyes, the first thing that met my gaze was a heaping quart box of strawberries — the largest berries — that is, a whole quart of them — that I perhaps ever saw before in my life. Mrs. Root informed me that they were sent over by Mr. Horn. She said the boy called them "Great something," she could not exactly remember what it was.

"Great American?" said I, as I picked up one of the great awkward chunks of delicious fruit and sampled it.

"Oh, yes! that is it—Great American."

It was not long before I was over to my neighbor's, on my wheel. Now, his strawberry-patch is not over a hundred rods from my own down on the creek bottom; and yet he has beaten me all to pieces — at least on *late* strawberries. Why, if somebody had exhibited that box of berries, and had offered me a hundred plants of the same for a five-dollar bill, I should have handed over the bill "quicker'n a wink." Best of all, these berries were grown on soil precisely like my own; and this yield of enormous berries was after even the Parker Earle was almost done fruiting. The bed had been neglected, and the foliage was so thick you could not see a berry until the leaves were parted. The great leaf-stems were toward a foot high or more, and the fruit was tangled in the foliage. There was such a tremendous growth of plants covering the whole surface of the ground that the heaviest storm could not soil the berries a particle. Very likely this great mass of foliage was one reason for the season being held back, as the sun could not get at them.

Now, I have heard of the Great American before. In fact, some years ago I gave it a partial test; but my plants may not have been true to name. Neighbor Horn sells his berries at the groceries. He said the first pickings brought 6¼ cts.; then 8 and then 9. But the last which he sold for 9, he said the grocer retailed out at 12 cts. for every quart of them before the boy left the store. The fruit is shaped very much like the Sharpless. You remember when I first commenced raising the Sharpless I said the berries looked like "chunks of pudding." Well, that describes the Great American exactly. In point of flavor they are exactly like the Sharpless, as nearly as I can remember.

I had been thinking I could not eat strawberries, especially for supper. When Mrs. Root placed the heaping saucer of Great Americans close to my plate at suppertime I felt almost sure, both from looks and taste, that they would not hurt me, and they didn't. I suppose they are a very large per cent water; but when fully ripened they have a delicious pineapple flavor that is most fascinating. Our Mr. Turner, you know, has been for years at the Ohio Experiment Station, Columbus, where they test every thing in this line. Said I:

"Mr. Turner, you people, of course, tested the Great American with other strawberries? Now, will you please tell me why it has not made more of a stir in the world?"

He replied in just two words:

"Too soft;" and that tells the story exact y. If fully ripened they certainly would not stand shipping; but for home use, or for selling in the way we do, picking the berries between 4 and 6 o'clock, and selling to consumers before noon, I believe I should call them the "best berry in the world"—at least, the best *late* berry. Very likely the berry does not ordinarily produce as many quarts per acre as the Haverland, Parker Earle, Bubach, and some others; but managed in the way I found these, the yield was certainly very satisfactory; and it does not take any time *at all* to pick the fruit.

By the way, why can't this berry be profitably grown and let it cover the ground entirely, having no paths, no weeds, no management at all? Make the ground exceedingly rich; keep out every weed until the plants get complete possession, as in the new celery culture, and then just let the whole thing take care of itself. Grown in this way they do not need any mulching, and I do not believe the plant would ever be thrown out by frost; neither would a late frost injure the blossoms, for two reasons — the bloom is very late,* and the immense foliage would protect it. But I tell you, you would need to have some careful pickers. The average boy would be sure to set his foot right square on one of these immense bunches of huge berries.

Now, mind you, the Great American will never be popular as an all-purpose berry, because it is "too soft;" and during very wet seasons they might, like the Bubach, rot before ripening. But for home use, or for selling right around among your neighbors, I believe I should call it one of the best.

Before the sun went down that night I had some of our best creek-bottom ground prepared; and before another day had past, some Grea Americans were taken up with a lot of soil adhering to the roots, and transferred to our rich ground. Of course, we had to take old plants, because they have not commenced to send out runners yet; but we are going to make plants this fall, and get out a plantation that will bear fruit next year—you see if we don't. Now, has any reader of GLEANINGS had a similar experience with the Great American? If so, will he please tell us whether he has plants for sale? Better still, mail me half a dozen as a sample;

* The blossoms are perfect, so no other variety is needed near them.

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and I think you had better put a little advertisement in our journal; for we (that is, the readers of GLEANINGS) want the genuine Great American, such as I have described.

Next time you take a good long wheel-ride, if you can get hold of them just take a great heaping quart of Great Americans and sit down in the shade and enjoy yourself, and thank A. I. R. for having told you where to find at least one of God's most luscious gifts.

I think I shall have to own up that I am not a very good hand at raspberries, nor blackberries either; but when you come to gooseberries —this year, at least—I am a grand success. Down on the side hill, this side of the creek garden, there is a row of gooseberries 200 or 300 feet long; and every bush is not only loaded with fruit but it is actually lying down on the ground with loads of berries. Before our recent abundant rains I feared the berries were going to be rather small in size on account of the excessive quantity. I wrote to several commission houses to know what they would give for green gooseberries provided I thinned off about half of them. They replied that the market was already overstocked; but now since the rains, they are fully as large as I ever saw them, and there are bushels and *bushels* of them. We commenced selling them at 5 cts. a quart; but now we are letting people have them at $1.00 a bushel provided they will come and pick them for themselves. Our Mr. Turner just gave me a hint in regard to gathering this fruit. Ask your wife to lend you her apron (if you are so unfortunate as not to have a wife, borrow an apron of some other good woman). Get a little box just the right height to sit on comfortably, and seat yourself beside the gooseberry-bush. Lift up the branches and get them over your apron. Strip off fruit, leaves, and all. When you get through, winnow out the leaves in a light breeze. If there are enough, put them through a fanning-mill. Our boy "Fred" says he thinks he can pick a peck in 15 minutes, but I think he had better say twice that time. Now, if some of the bushes were full and others not, I might think it was the variety; but that row contains almost all kinds of gooseberries that have been advertised in the catalogs, and they are loaded just the same, unless I except some of the new varieties that cost 25 or 50 cts. a plant. Some of these bear great whopping berries, but they have never been loaded down on our grounds. If you are going to put your gooseberries through a fanning-mill, and carry them home in a bag, on your bicycle, you want to pick them *before* they are dead ripe.

Later, June 25.—I said I could not raise raspberries; but I can, after all. We have made our first picking of the Gaults. There is going to be a great lot of them, first crop; and the first picking, at least, are the largest raspberries I ever saw. I think the Gault this year will give us more berries than any other raspberry on our grounds; and that is the first crop, mind you. The buds and blossoms are already out for those tremendous clusters of the second crop.

Elæagnus longipes has given us a crop of splendid berries—perhaps I had better say cherries—this year, and I regard the plants as an acquisition. They are as large as fair-sized cherries. The stone, or seed, is a great deal smaller than that of any cherry, and they have a sprightly acid flavor that is very refreshing to me. It also makes just the nicest kind of pies, according to my notion. My half-dozen plants are fully equal to the catalog picture. They are bending with fruit just as the catalog said they would, the second year after planting. They do not seem to have any insect-enemies. The bushes are strong rank growers, and I wonder the world has been so long ignorant of so beautiful a fruit. I must tell you, however, that there are a few people who stick up their noses and make a face at this fruit. Everybody admires the plant and the beautiful fruit, but not everybody likes its peculiar tartness. On the experiment farm they had not borne fruit yet, and it was my pleasure to express them a sample basket.

THE EARLIEST POTATO IN THE WORLD.

It is now June 17, and we have just been sampling some of our earliest potatoes. The White Bliss Triumph is certainly ahead. Burpee's Early, Six Weeks, Early Ohio, and Thoroughbred, would come next. So far as quality is concerned, while they are so immature there is not very much difference. The Thoroughbred, to bring out its best table qualities, needs to be fully ripe, and I suppose this is the case with almost any other potato. By the way, I have told you several times of the Thoroughbreds that I started in the greenhouse, afterward planted out in the cold-frame—the ones that stood three feet high until a heavy storm blew them down. Well, the vines now are beginning to look yellow, and show some signs of maturity. A few minutes ago, while looking them over I saw the ground heaving up in various spots, so I put my finger down, and without any trouble at all I picked out half a dozen potatoes averaging ¾ lb. each. This, as you know, is pretty large for table use; in fact, I believe the general market would prefer them smaller rather than larger. Three of these great fellows came from a single stalk, the produce of a single eye. It was somewhat of a question whether we could get a good yield of potatoes planted only one foot apart from center to center; but the Thoroughbred will do it, and no mistake. I fairly ached to dig up the whole patch, to see how many bushels per acre the yield was going to be; but I know by past experience we can not get a full yield unless the vines are permitted to become dry and dead. The potatoes are certainly the smoothest, fairest, and handsomest-shaped of any thing it has ever been my lot to grow. When the seed gets cheap enough with the Thoroughbred, I shall be quite willing to grow early potatoes for table use by starting them under glass. Just think of it—a big yield of large potatoes by the middle of June!

CHEMICAL FERTILIZERS; INVESTING MONEY IN THEM WITHOUT MAKING EXPERIMENTS FIRST ON A SMALL SCALE.

Mr. F. B. Chamberlain, of Penfield, O., paid us a visit yesterday; and while looking over our potatoes he told me in substance as follows: Last year he bought $40.00 worth of a specially prepared potato fertilizer, and left alternate strips, as they do at the experiment station, with phosphate, and the other strips with nothing. At digging-time the strips with nothing applied gave 10 bushels per acre more than where he put on the high-priced fertilizer. He submitted the matter to the agent who sold it to him, and he said it was on account of the dry weather; but, mind you, the potatoes with *nothing* applied had to stand the dry weather also. They claimed, however, that *this yea* this heavy application of fertilizer would make a showing clear and plain on the present crop. At this date, however, June 25, no benefit can be discovered. You may say the brand of fertilizer was a spurious one; but I think not. Friend C. can tell you what make it was, if you wish. At our experiment station they have had several cases of a like nature, where the

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application of an expensive fertilizer actually *cut down* the yield. Now, I do not mean to advise that you stop using chemical manures, but I would stop buying $40.00 worth to start with of something you have not tried. Make some tests in your garden first. When you get hold of something that does enough good to pay the cost, try it on a little larger scale next season, and so on.

June 27—just before going to press.—I have just returned from a trip on my wheel to Matthew Crawford. From my description of our big strawberry he thinks it *is*, without question, the Great American. Mr. Crawford agrees substantially with the decision of our experiment station in regard to strawberries. The Wm. Belt and the Brandywine stand now at least very near the head for perfect-blossoming late strawberries.

THE GAULT RASPBERRY, ONCE MORE.

If you will excuse so many conflicting reports, permit me to say that, at the present time, the Gault is ripening up fruit that in size, quality, and firmness, is equal to any thing I have ever seen, and you know I have just visited Dan White, the experiment station, and Matthew Crawford. Not only is the center one of the cluster large and handsome, but there will be a dozen or more berries on the stem ripening all at once, pretty nearly all alike. The worst trouble now is, that the great weight of the immense berries brings the branch down to the ground, so that a good many got muddy from the recent rains.

THE NEW EVERBEARING YELLOW RASPBERRY.

We have just received a basket of these from friend O. E. Hemenway, New London, O. (see page 506). They are about the size of the Cuthbert, and very much in looks like the Golden Queen. They are of a beautiful orange yellow, with just enough reddish tint to make them look fascinating. They are not as sweet, however, as some of the red raspberries, and altogether too soft for shipment—at least, those sent us were; but for family use, a small patch in the garden would be not only a "thing of beauty" but a delicious dessert. If you want to know any thing more about them, or how to get the plants, etc., write to friend Hemenway.

WHITE BLISS POTATOES FOR IMMEDIATE PLANTING FOR EARLY CROP.

We have had little or no experience in growing potatoes from a crop already grown the same season; but the White Bliss is now ready for planting; and we give place to the following, at the end of a letter just received from friend Swinson:

I will sell White Bliss of the spring crop at $3.00 per barrel. These are fully matured, and will run in size from a large hen's egg to twice the size of goose eggs. They can be planted for second crop *north* up to August 1, and *south* up to September 1, if fertilized well so as to force rapid growth.

Goldsboro, N. C., June 24. A. L. SWINSON.

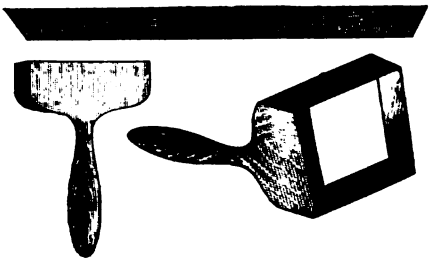
Triumph potatoes are now advertised in the Cleveland market at $1.50 per barrel. This is the same thing as the Red Bliss, from which the White Bliss was originated. We have today, June 29th, White Bliss grown on our own grounds, planted about May 1st, weighing fully half a pound; and on "*our* experiment farm" it stands to-day the earliest potato. They are not only handsome, but of excellent quality.

HAND-WEEDERS, ETC.

Mr. Root:—I send you by this mail a little tool that we use in the garden with most satisfactory results. Try it in beet, carrot, and turnip beds. We have them all widths, and also with handles three feet long. A man will do as much again work with one of them as with any other tool I can buy or find advertised in any catalog.

Windham, N. Y. O. R. COE.

In the same mail with the above was a small hand-weeder like the cut below on the right.



The figure on the left, and the upper one, show the construction. The long strip is galvanized iron folded at a sharp corner, as marked, then nailed securely into the wooden handle cut out of an inch board. We made perhaps half a dozen of these weeders; and where the metal is kept sharp on the edges with a file, it seems to answer about as well as any that cost three or four times as much. You see, they work on the principle of a scuffle-hoe, sliding under the surface without disturbing the ground very much or throwing it out of level, but killing all the weeds. Another thing, you can go close up to the plants without any danger of cutting them, for there is no sharp point to come out under the ground closer than you intended. If you like the tool, thank friend Coe.

This spring, while looking over our new counter store, my eye rested on a little implement made of iron and steel, shown in the figures below.

A TEN-CENT ALL-METAL GARDEN-WEEDER.

These implements are made and sold for pot-cleaners. By squeezing the handle, the thin steel blade is curved any degree you wish. Well, I stood and stared at the things several times, and mentally scratched my head to know why it was these things suggested something, I could not tell exactly what. After a while, however, I "caught on."

"Why, Charley, as sure as you live your pot-cleaners there will make the best garden-weeders in the world;" and we took a lot of them up to the swamp garden and tried them among onions, turnips, radishes, etc., and the boys all call them the best thing out. Where you get the plants too thick, and they have to be thinned out by hand, I tell you this machine is *the* thing. If the ground should be uneven, and you want to get down into a hollow, just squeeze the handle, and it makes a regular spoon, as it were. The thin keen steel blade operates like friend Coe's weeder, only it is so small you can readily carry it in your pocket, and it is so light it may be sent by mail for only 4 cents for postage. We should have gotten it before our readers earlier in the season, were it not that we had to wait some little time for the cuts.

HUMBUGS AND SWINDLES.

Mr. Root:—Is the inclosed any good? If not, can you give me any good process by which fruit that I can not sell may be put up to sell at some future

day, and also the best way to make pickles? As I have considerable garden, and good seasons, most of the truck can not be sold; and bad seasons we haven't any to trouble us. I also want a process for putting up sweet corn in small quantities.

Sioux Falls, S. Dakota. JAMES E. NIELD.

Below is the paragraph referred to. It seems to have been clipped from *The Western Garden:*

A CHANCE TO MAKE MONEY.

I have berries, grapes, and peaches, a year old, as fresh as when picked. I use the California cold process. I do not heat or seal the fruit—just put it up cold; keeps perfectly fresh, and costs almost nothing; can put up a bushel in ten minutes. Last week I sold directions to over 120 families. Any one will pay a dollar for directions when he sees the beautiful samples of fruit. As there are people poor like myself, I consider it my duty to give my experience to such, and feel confident any one can make one or two hundred dollars around home in a few days. I will mail a sample of fruit, and complete directions, to any of your readers, for 18 two-cent stamps, which is only the actual cost of the samples, postage, etc., to me.

St. Louis, Mo. FRANCIS CASEY.

Your California cold process is an out and out swindle; and the most shameful part of it is, that various journals will accept this kind of advertisements and put them right in their reading-notices, without any caution or warning to their readers. I do not know whether the editors are stupid or ignorant, or whether they are so lacking in conscience that they do not care how much their readers lose, providing they get the money for inserting the advertisement. Just one single point should be proof enough to anybody: This man Casey says he can put up a bushel of fruit in ten minutes. If this is true, why do men invest thousands of dollars in putting up expensive canning-factories for canning peaches, vegetables, and other produce, when for 18 two-cent stamps they could learn how to put up fruit so that it will keep a year without spoiling, at the rate of a bushel in ten minutes? I do not know whether Francis Casey sends any samples of fruit or not. You can find out by investing 18 two-cent stamps. The thing was exposed years ago by the *Rural New Yorker* and other periodicals. There is no process known for keeping fruit better than the ordinary well-known methods of canning. It is possible to put up sweet corn in your own home so it will keep; but it is a difficult and laborious operation unless you have appropriate machinery. I know it would be a grand thing for each family to put up its *surplus* stuff right at home; but the regular process by canning is the only safe and wholesome method. Rhubarb for pies, and some other garden products, may be kept in tolerable condition without heating, so I am told; but, if I am correct, it is an uncertain and risky business at the best.

P. S.—I will send the stamps for the process and give it to you all in next issue, *if I get any thing.*

Special Notices in the Line of Gardening, etc.

By A. I. Root.

CRIMSON CLOVER—ADVANCE IN PRICE.

At present writing, new seed, American grown, can not be furnished for less than $4.00 per bushel, or a two-bushel sack for $7.50; ½ bushel, $2.25; peck, $1.25; 1 lb., 12 cts. If wanted by mail, add 10 cts. per lb. for postage and packing. There are two reasons for the advance in price. One is, the great and increasing demand for it; and the other is, the scarcity, or at least the reported scarcity, of the new crop.

GARDENING IN JULY; OR, WHAT CAN BE PLANTED WITH REASONABLE PROSPECT OF SUCCESS IN SECURING A CROP.

If you are having plenty of rain, asparagus-plants may be put out. We have a fine lot three or four inches high that we will send by mail postpaid for 50c per 100; by express, 30c.

All kinds of bush beans may be put in now; in fact, when put in as late as this they are much more certain to be free from bean-weevil. Even the bush limas, with favorable weather, will make a crop when planted the first of July. If you are in a locality where there is danger of frost, the York State Marrow or Navy are more likely to mature. All kinds of wax beans will make an abundant crop for table use, and they very often bring better prices just before frost than if grown earlier.

All kinds of beets will make a crop if put in now. The mangles, however, may not be full size, but they are just as good for stock.

Cabbage-plants can be set any time during this month. In fact, a good many prefer their main crop of field cabbage set not earlier than the middle of July. There is then very little liability of bursting open. We have a fine stock of plants ready to ship on an hour's notice.

Carrots will give a very good crop sown now.

We always get our finest and largest cauliflower from seed sown about this time, or a little earlier. Cauliflower needs cold weather to make large and perfect heads.

All kinds of celery-plants can be put out any time during this month; also sweet-corn for table use, except the late varieties.

This is the month to sow cucumber seed for pickles. Please notice our low prices for pickle seed.

Keep sowing lettuce. Almost any town of any size nowadays will buy Grand Rapids lettuce every day in the year if it can be had.

It is probably pretty late for melons unless it is the extra-early muskmelons.

Onion seed that is left over may be planted for sets. With the American Early Pearl, the seed may be sown right where you want to get onions next year. If the onions should get to be as large as hickorynuts, or larger, a good many of them will send up a seedstalk in the spring; but if this is pulled off promptly you will get very nice onions. Winter (or Egyptian) onion-sets can be planted now, and we have a fine stock of sets ready to send out. Please notice they are only $1.00 per bushel. White Multiplier and potato onions may be planted now. In fact, you can plant them from now on until freezing weather; and in most localities they will stand the winter.

We succeed nicely with all kinds of peas planted in July; and the extra-early peas may be put in as late as the middle of August, and still give a good crop. In fact, we sell peas at good prices from May till October

Small rhubarb-roots will do nicely any time from now on if you have plenty of rain, or give them water to keep them growing.

All kinds of radishes mature quickly, and make nice roots, if put in now.

Spinach also does well except the trouble of running up to seed unless you gather it promptly.

Crookneck squash will make a crop if planted at once.

All kinds of turnips may be put in now; but don't put in many early, because the hot weather spoils them unless they are gathered as soon as they get large enough to use.

Sweet-potato plants, if put out before the 15th of July, usually give a crop.

Strawberries set out at once, and kept growing by watering, if you do not have plenty of rain, will make almost a full crop next spring.

This is the great month for putting out potted plants; but if you can take your plants up yourself, with some dirt adhering to the roots, and set them into the ground carefully, without having the dirt crumble off, they are, to all intents and purposes, as good as potted plants. You can not get on too much manure for strawberries, but you want your ground well underdrained.

Last, but not least, you can plant almost any of the early potatoes in the month of July. We succeed best with the Freeman for a fall crop of early potatoes. We have left now the following:

State of Maine, 3 bush.; Beauty of Hebron, 10 bush.; Burpees, ½ peck; Snowflake, 3 bush.; Lee's Favorite, 15 bush., seconds; Craig Seedling, 30 bush.; Monroe Seedling, 5 bush.; Freeman, 27 bush.; Manum's Enormous, ¾ bush.; Livingston's Banner, ½ bushel. For conditions on which the above are *given* away, see last issue.

OUR OWN GARDEN, JULY 1.

We have an abundance of almost every thing now unless it is lima beans, green corn, and melons.

We have the finest cabbage and cauliflower we ever raised before in the world. Johnson & Stokes' extra-early cabbage so far has gone ahead of the Jersey Wakefield. It is just as early, but the greater part of the heads are very much larger. Most of them are conical in shape, like the Wakefield, but the variety does not seem to be very much fixed, for there are a good many round heads among them; but as they are very large and early, it does not matter very much.

We have beautiful ripe onions, both White Multiplier and the Whittaker onion, besides the extra-early American Pearl.

We have been having a big trade on peas at 10 cts. a quart until within the present week. To-day, June 25, they are down to 5 cts.--retail, of course. We shall have new tomatoes, and new green corn, probably, within a week.

Our first gathering of white-egg turnips was put on the wagon to-day, and I tell you they are beauties.

KIND WORDS FROM OUR CUSTOMERS.

THE NEW-PROCESS FOUNDATION.

The foundation from Syracuse came the next day after I wrote you. It is the nicest I ever saw.
Fair Haven, Vt. A. J. GIBBS.

A GOOD WORD FOR THE LEAN-MEAT DIET.

I owe you many thanks for bringing to my notice the "lean-meat cure." It has been a great benefit to me. I am stronger, and have a better digestion, than at any time in years. P. M. HOOD.
Boyne Falls, Mich.

Potatoes received this morning. Many thanks for your kindness. My wife cooked a mess of the Freemans for dinner, and we pronounce them as good as the old red Peachblow or any other potato we ever had, and they were larger than I expected.
Quincy, Mich., June 15. J. S. CLEAVELAND.

My order, No. 45,592, came to hand yesterday, all in the very best style. With these grand hives, so perfectly made, and the Italian bees, the business can not only be made healthful and profitable, but a great pleasure as well. DR. W. P. MOORE.
Portland, Tenn.

My outfit ordered came in good order, every thing as you represented in your catalog. I am highly pleased with all, and have the hives all put together and painted, ready for the bees I have not had any swarms yet, while my neighbors have. Mine seem to appreciate my efforts in trying to fix their dwelling and furnish the same for them. Please accept my sincere thanks for the kindness you have done me in this order. I will try to make it profitable to you, as all who have seen my hives and outfit generally are much pleased with them.
Burrowsville, Va., May 2. L. L. BROCKWELL.

NEW-PROCESS FOUNDATION.

Thank you for the sample of the new-process foundation and sections. Surely it would be impossible to produce any thing in the shape of foundation to excel the samples. They seem as tough and pliable as peach leather. You, of course, know what that is; and then it is so beautiful and perfect in construction. Holding it between the light and the eye, I see it is perfectly uniform in color and thickness; and if it were not for the cost of shipping I should like to exchange several pounds of foundation and wax for foundation made by the new process; for I am satisfied bees would work it much more easily than the old kind. J. A. GOLDEN.
Reinersville, Ohio, May 11.

HONEY AND STRAWBERRIES FOR BREAKFAST; CARP RIGHT OUT OF THE POND FOR DINNER, AND—

The prospects are good for a fair crop of honey this year. The scale hive weighs 97 lbs. It gained 22 lbs. in locust bloom. I have 75 hives in nice shape—20 in chaff hives, 20 in Simplicity, 35 in 8-frame hives, and I have about two acres of berries. To-morrow will be my first picking of strawberries. Mr. Root, come down with your wheel and see Washington and Washington County. We will have strawberries and nice honey for dinner, and have a fish in the afternoon from a millpond that is alive with carp. It covers about 25 acres. I went down after supper and caught 25 that weighed 13½ lbs.
Washington, Pa., May 22. H. W. VAN KIRK.

WHOLE POTATOES VS. "CUT TO ONE EYE" WHEN THE SEED IS CHEAP, ETC.

Mr. Root:—We have just received GLEANINGS, and my husband sat reading it and eating his dinner at the same time. When he came to the "Chinese garden seeds" he read it aloud. "Oh!" I said, "we must send for some."

"Yes," he said, "I knew you would want to. I am always anxious to try new things."

We are watching Maule's Thoroughbreds with great interest; the potatoes my husband planted whole are away ahead of the ones planted the same time, cut in pieces. The radishes received of you were the nicest we ever had.
Welcome, Minn., June 3. MRS. A. R. TUTHILL.

A KIND WORD "WITH A VENGEANCE."

One of the other bee journals recently made a pleasant objection to discussing matters of diet in journals of this kind. One of our subscribers makes a little protest, and ends it up as follows:

Friend Ernest:—If you or your father can give us hints that will be helpful to us, I think it *is* in order. To illustrate, about 14 years ago I had a fit of sickness that cost me $200. Three years ago last fall I had the same thing again, continuing for two months, with intense suffering, and it cost another $200. Last fall the same symptoms appeared again; but, profiting by something that A. I. R. said in GLEANINGS last summer, I drove it away and saved the $200, and I think it was all due to the hint I received from A. I. R. I predict that, a hundred years after the world has forgotten that * * * ever lived, the name of A. I. Root will be remembered and respected. REV. C. H. SHERWOOD.
Newton, N. J., May 19.

A KIND WORD FOR THE "WHOLE GLEANINGS FAMILY."

I have received notice that my time is out for GLEANINGS. We have been together nearly thirteen years. I have a great pile of journals, and I know I should not like to sell them for first cost, nor would I sell the knowledge gained through them for *ten times* what they cost. Well do I remember my first acquaintance with GLEANINGS. A neighbor hired me to make him some bee-hives, and he brought me a copy of your A B C book to get the dimensions from. I never stopped until I had read every line the work contained. I made his hives, bought some bees, subscribed for GLEANINGS, bought a copy of the A B C book, worked for more colonies of bees, Italianized all of them. Then I made a hand power buzz-saw; got saws of Mr. Root, also grooving-saws to make sections, frames, etc. Finally I bought an engine, and I have never regretted any part of the whole proceedings. I have made hundreds of dollars with my engine and woodworking tools, and I have made several hundred more with my bees. Of course, I have had some heavy losses in bees; but withal I am content. I now have nearly 60 colonies and some 10 or 12 nuclei, and I could not be induced to part with them for any reasonable sum. In this time I have, through GLEANINGS, become acquainted with a great many bee-keepers all over the country; have had business transactions with several of them, and have learned to love and respect all I have dealt with. I have also become acquainted with supply-dealers in other States, and have no complaint to make against any one of them. So you see if I should stop now I should lose all the advice of the ones I like to pattern after—all the cheering words of counsel, and many new ideas that come from time to time in the journal. No, don't stop it. I can't afford to let it go now. I should get out of joint or out of gear; the belts would slip, the machinery wouldn't run so smoothly, and the hum of the bees wouldn't sound so sweet. No, don't you ever stop my journal till I tell you to. Now, then, on another slip you will find my order and cash; but don't send any barrels of potatoes nor any thing else, for the book and the journal are worth more than the $2.00.
Mt. Erie, Ill., June 8. J. J. MCCOY.

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Have never seen such industrious, energetic bees.—DR. LUNG.

The best honey-gatherers I have.—C. C. THOMAS, Murrietta, Cal.

I never saw such workers; have queens from 20 breeders.—SAM KING, Massey, N. C.

Warranted queens, 80c each; 3 for $2.00. Select warranted, $1 00 each. Tested, $1.00; select tested, $1.25. Safe arrival and satisfaction guaranteed. Send for circular.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 841 queens.

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After June 10th we sell eggs from all our yards at HALF PRICE, ($1 per 15.) Eggs will be from our best pens and handled with the same care early orders receive. Our breeds:

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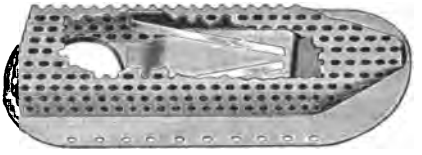

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SPECIAL NOTICES FROM BUSINESS MANAGER

CARLOAD SHIPMENTS.

We have sent a carload to Syracuse, another to St. Paul, since last report, and also a fifth for the season, to Jos. Nysewander, Des Moines, Iowa.

BUSINESS AT THIS DATE.

We did not run on 9 hours a day more than about a week before we had to increase to several hours over time in the section-box department in order to keep pace with orders. The prospect of a bountiful honey crop in very many localities reporting is very flattering where there were bees in condition to gather it. Unfortunately the repeated poor seasons for three or four consecutive years have discouraged many so that their bees have either all died off or are in such poor condition as to be unprepared for the bountiful honey harvest they might have secured this year had they been ready for it. The call for section boxes has been almost unprecedented. During the 9 months since Oct. 1, 1895, we have made eight million sections, which is equal to the total output for the whole year previous. We have made about one and a quarter million so far during June, up to to-day, the 26th.

SECOND-HAND FOUNDATION-MILLS.

We have in stock the following second-hand comb-foundation machines which we offer to those interested:

One 6-inch Vandervort No. SS, hex., for thin surplus. Price $6.00. An excellent mill except for a slight blemish on one side of the rolls, probably caused by a cloth getting in--really no detriment for practical use, affecting only the looks; a bargain at this price.

One 6-inch Vandervort No. PP, hex., for thin surplus foundation. Price $9.00, This is a good machine, and excellent value for the price.

One 6-inch. No. 1467, hex., for extra-thin foundation, about 11 ft. per lb. Price $12.00. A bargain.

One 10-inch Pelham No. RR. Price $8.00. Will make heavy foundation; is nearly new, and in good order.

One 10-inch, round cell, No. TT. Price $10.00. This will make medium-grade foundation. It is in good condition, and good value for the price.

One 10-inch round, No. 1505. Price $18.00. This is a late style of mill, practically new, and a bargain.

Samples from any of the above mills on application.

Hardy Prolific Queens.

Gray Carniolans or Golden Italians, bred in separate apiaries. One untested queen, 65c; six for $3.50. Tested, $1.25. Select tested, $2.25. Best imported, $4.00. Never saw foul brood or bee paralysis. *Satisfaction guaranteed.* Descriptive price list free.

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Lake George, N. Y.

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Equal to X Rays.

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CHRISTIAN WECKESSER, Niagara Falls, N. Y.

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Untested, 50c; doz., $5.00
Warranted, 60c; " 6.00
Tested, 75c; " 8.00

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CLEVELAND BROS., Stamper, Miss.

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This season's rearing, 60 cts. Warranted purely mated, 50 cts.; ten for $4.50. Strong 2-frame nucleus with tested queen, $2.00. I breed from best imported mother. Have had eleven years' experience with nearly 200 colonies in the production of honey. I know what good queens mean to the honey-producer, as well as how to rear them. Queens sent by return mail. Safe delivery and satisfaction guaranteed. No disease.

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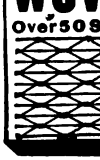

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Ridgeville, - Indiana.

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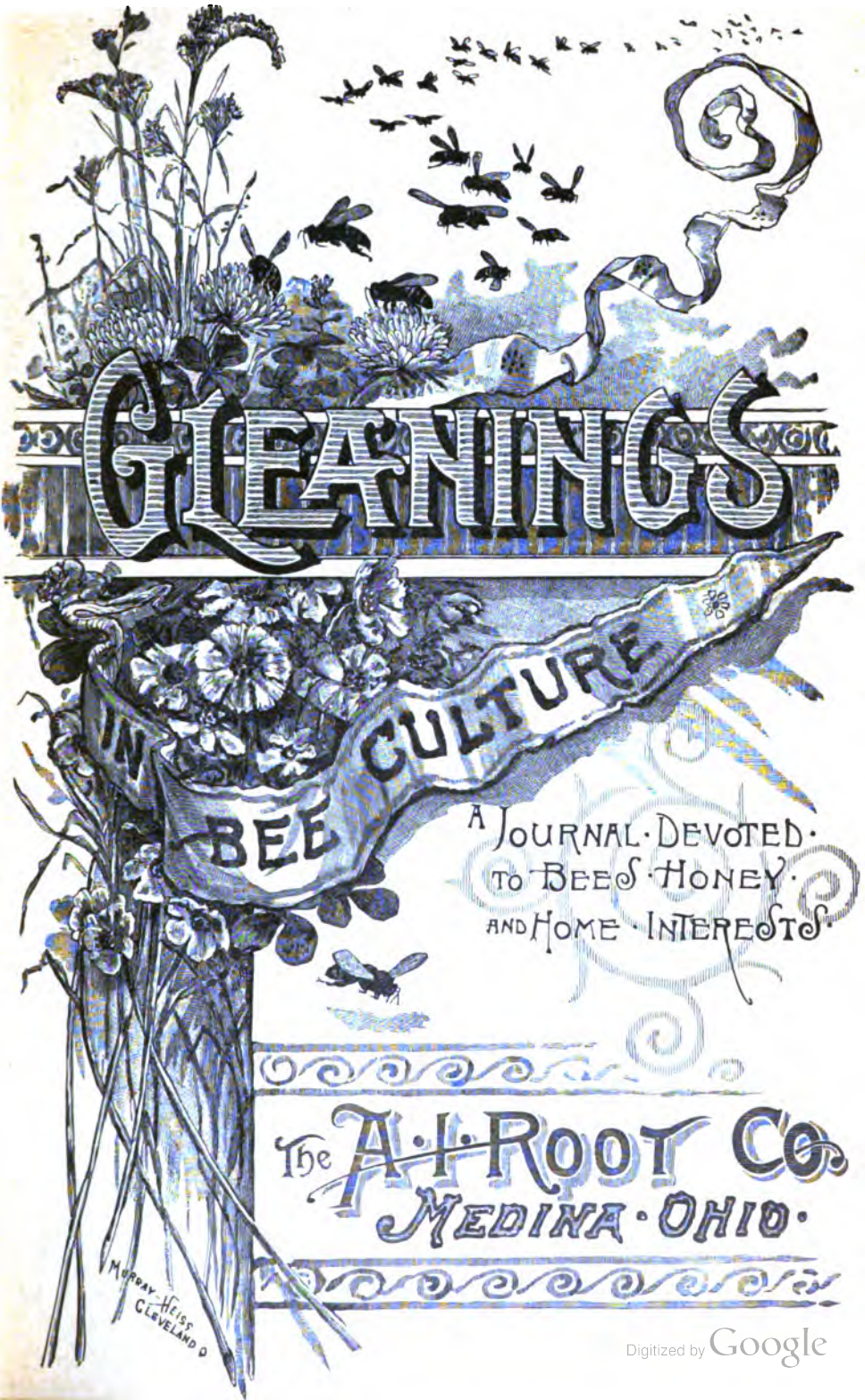

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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

Vol. XXIV. JULY 15, 1896. No. 14.

STRAY STRAWS FROM DR. C. C. MILLER.

"APPLICATIONS of honey," says a medical quarterly, "are said to quickly relieve the pain and abort the attack in erysipelas of the face."

PROPER SPACING is clearly reasoned out on p. 498 to be just 1⅛ inches, while Doolittle, in *A. B. J.*, reasons out just as clearly that it should be 1⅛; 1⅜ is a pretty fair compromise.

"THE VERY BLACKEST old comb you may have," says R. C. Aikin, in *Am. Bee J.*, "will give a bright wax from the solar; but if put through water it will be very dark. [Quite right, according to our experience.—ED.]

LAST NUMBER of GLEANINGS, in its editorials, smacks strongly of practical work in the apiary. Wish its editor could be kept there about all the time. [I wish so too; but I am in the apiary more than you are perhaps aware.—ED.]

I WOULD GIVE a dollar a pound for some nails of the right kind to use for spacers on brood-frames—wire nails 1¼ long or less, with heads ¼ inch thick and $\frac{3}{16}$ across. [What do you mean by "right kind"? We'll take a contract for a few thousand pounds. Be generous in your order.—ED.]

A DECIDED ADVANTAGE it is to be able to dispense with honey-boards—saves time and muss. But I'm afraid there's one disadvantage. I'm afraid queens will go into sections oftener without honey-boards. But even if honey-boards must be used, I'd want thick top-bars with them, ⅞ thick at that.

SWEET CLOVER can never, I think, take the place of white clover as a honey-plant, and we may as well know it first as last—just because sweet-clover honey can never take the place of white-clover honey on the market. Some will like it better than white clover, but others will not like it at all. [If *white* clover can not be had, *sweet* clover would be a most excellent substitute, at all events.—ED.]

R. C. AIKIN reports in *A. B. Journal*, that, in the solar extractor, 100 Langstroth combs yield from 17 to 20 pounds of wax. That means about 1⅛ pounds of wax for an 8-frame hive. [This would be quite a large amount of wax from old comb, according to our experience. Perhaps Mr. A.'s combs were not very old.—ED.]

E. E. HASTY, the *Review* reviewer, says, "I have a sneaking notion that the current impersonality of editors is an error and a nuisance—a nuisance which is tolerated, not for its own sake, but because it renders impossible the much worse nuisance of editorial garrulity and self-parading." He thinks both evils should be avoided, and the golden mean taken.

A GOOD SCRATCHER to scratch the surface of sealed honey so as to get the bees to empty it out is made of a piece of heavy wire cloth, three meshes to the inch. Possibly five to the inch would be better. Take a piece three or four inches square, and you'll find the edge where it is cut off just the thing to rake the surface.

BEES DEFY all rules sometimes. To-day I found in a hive post-constructed queen-cells and queen-cells containing pollen. Either one of these ought to be taken as good proof of queenlessness; but a laying queen was in the hive doing good work. [We may first as well as last set it down as an axiom, that bees never do any thing invariably.—ED.]

SKYLARK says, p. 489, that "once more" the Chicago market is opened up for Californians, still implying that his former charge against me was correct. Say, Skylark, wouldn't it be the square thing for you to come out like a man and say that you were in the wrong, and that I had never whispered a word against Californians camping right down in the Chicago market?

IT'S ALL VERY WELL, Mr. Editor, for you to suggest warmer weather as a remedy for the trouble of bee-glue with tin rabbets; but you don't send out an assortment of weather with the rabbets; and work has to be done, weather

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or no weather. Let's have things to fit cool weather, and they'll be all right for hot weather. [But the far greater part of that work *can* be done in warm weather, just the same'e.—ED.]

"RAISE NONE—*not one*," is W. K. Morrison's dictum as to drones, p. 497. But do you realize that one-third of your queens are superseded each year, friend M.? and that means you must have some drones in the apiary, and drones are free commoners, going from one hive to another. Even if you raise "not one" drone, they'll enter your hives from your neighbors' bees. [Hadn't thought of this point before. That alone would make the no-drone theory of non-swarming impracticable.—ED.]

THICKNESS OF COMB is given, p. 498, as $\frac{55}{100}$ inch. But in measuring for spacing, the thickness taken should be that of comb containing capped worker brood, and Doolittle says the capping adds a full eighth of an inch to the thickness, and worker comb used for the first time measures an inch when capped. Then remember that comb thickens with use, old comb measuring an inch without capping. So old comb capped would measure 1⅛, and a 1ding $\frac{55}{100}$ space would make just about 1½.

PROF. COOK relates in *A. B. J.* that he received from four different States honey reported to be poisonous. He ate freely of it, and is still living. [We have had a good many articles from good bee-keepers, taking the ground that some honey is poisonous. Among these writers is no less a person than Dr. J. P. H. Brown. Prof. Cook's article seems convincing, and yet I'd like to hear from others, both for and against the theory or fact of honey being poisonous. This is a matter that should be decided right.—ED.]

"WHITE CLOVER seems to have run out for the last four or five years," says the editor, p. 502. You may be pleasantly disappointed. Last year there were scarcely any white-clover plants to be seen in this region, while this year the ocean of bloom beats the record for the past 25 years. I don't know where the plants came from, but they're there. [If white clover will only *run in* again, no matter where it comes from, I shall be *most agreeably* surprised. I infer in your case you'll have white-clover honey.—ED.]

THICK TOP-BARS with proper spacing are a success in preventing burr-combs. No mistake about it. In some cases where honey was daubed between the supers, all was left clean over the top-bars. [Some bee-keepers strangely seem disinclined to accept the fact of there being few or no burr combs with the right kind of top-bars. History repeats itself. When Daguerre said he could and did make an image permanent on a looking-glass, it was disbelieved and even laughed at as an impossibility. X rays are another example of the same perversity in human nature.—ED.]

CASES ARE REPORTED in which swarms have issued with no sign of a queen-cell in the hive. I'm inclined to be mildly skeptical about this; at least, I have some doubt about such a case occurring unless the bee-keeper had baffled the intentions of the bees by previously removing queen-cells. The more bees are thwarted as to swarming, the more determined they sometimes are; and I can imagine their getting mad enough to swarm with no sign of a queen-cell. I've had many a case in which there was nothing further than an egg in a queen-cell.

H. E. Wilder is now foul-brood inspector for Riverside Co., Cal. I have no doubt the disease will have to seek other fields.

Pres. W. T. Richardson has so far recovered as to return to his home in Simi country. His accident detained him at Bro. Touchton's five weeks.

In a few instances, where the bee-keeper is in the same condition that his bees are, the man has to rustle for grub for himself, and the bees die.

It is currently reported that the X ray will destroy diphtheria germs. If that proves to be a fact, let us turn the rays upon foul brood. There is a wide field for making it useful in this State.

We hear now and then of a bee-keeper who feeds from one tank in the open air. That's a short cut, perhaps; but the result is any quantity of dead bees in the feeder. Near-by bee-keepers also are benefited.

We can put down another disastrous honey season for Southern California. From present appearances there will be scarcely a carload produced south of the Tehachapi. Bees are in a starving condition on many ranches, and feeding is the order of the hour.

Mr. Brodbeck, of Los Angeles, is a firm believer in the efficacy of bee-poison in the cure of rheumatism and boils. During the past winter he has been greatly afflicted with both maladies; but now, after a few weeks in the apiary, and a free reception of stings, boils and rheumatism are both banished.

In a recent letter a noted bee-keeper in Oakland, Cal., thus discourses upon queen-rearing: "That scheme of raising queens on the island may be a good one. It may be that this State can cut Italy out on the score of raising the best Italian blood in the world. I know that

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the Italian girls raised in this State are as fine looking as one would wish to see." □The idea of linking Italian girls with Italian queens shows that something is radically wrong with the eyes and inclinations of my sedate and old-time traveling companion.

ARE WE ALL CRIPPLES, INVALIDS, AND CONSTITUTIONALLY WEAK?

Yes, Somnambulist, I heard and noted the philippic given out by E. T. Abbott, in *A. B. Journal*, but I had not time just then to attend to *him*, being away up at Newhall taking care of my fame. Friend Abbott says:

> Honey-producers, falling in with the general drift of things in these times, seem to have the idea that there is only one road to success, and that is by having the government or some combination of men do for them what they confess, by their theories, they are not able to do for themselves—namely, make life a success in their chosen calling.
>
> The man who enjoys the privilege of these God-given blessings (health and being let alone) should be able to at least hold his own and keep his head above water. If he is not, it will only be an application of the doctrine of the survival of the fittest to let him go under. Crutches and government help should be reserved for invalids, cripples, and the constitutionally weak.

□I never expected such an article as this from E. T. Abbott. Being a man of letters, I did not look for any thing so wicked—no, no!—so frivolous; no, that's not the word either—so childish as this. Yes, friend Abbott, we *have* "fallen in with the general drift of things," and we *do* have the idea that "there is but one road to success." So far you are right, and have described the situation exactly. But when you say that we believe that road to success is to "get the government or some combination of men to do for us what we confess we can not do for ourselves," you are all wrong. Did any one ever ask the government to raise the price of honey, or to furnish supplies at wholesale prices? I trow not. But this is just what's the matter with us. Middlemen pile on the profits on the supplies until the expenses come to almost half the honey. There was some talk of getting the government to import *Apis dorsata*. Were the advocates of this measure "constitutionally weak, invalids, or cripples?" What writer has asked "some combination of men to do for us what we confess we can not do for ourselves"? Not one—not even a single cripple! This is a misleading statement. We do not confess any such thing, and never did confess it, either by theory or action. On the contrary, we claim that we *are able* to right our own wrongs by combination and union among ourselves. We do not ask "some combination of men" to help us, and never did. It is a rather bold insinuation—in fact, almost amounting to an assertion—that all who favor combination and union for self-defense and protection are either invalids, cripples, or constitutionally weak. What has built our great canals, and locked and dammed our rivers? Combinations among the cripples that didn't want to be let alone. What has dug and drilled and blasted out hundreds of miles of tunnels in search of the precious metals, until the Sierra Nevada and the Rocky Mountains have become catacombs as famous as those of Egypt or the *Via Appia?* The combination of the cripples who *didn't* "want to be let alone." What has built our telegraphs, telephones, and our thousands upon thousands of miles of railroads? Combination of the cripples who didn't want to be let alone. What has built and endowed our great institutions of learning that are the pride and the crowning glory of America? It was the combination, union, and organization of the "cripples, invalids, and constitutionally weak," who had no ambition "to be let alone." What is this great government of the United States, "of the people, for the people, and by the people," but a combination—a union and organization of millions of men for self-protection? Are we all "invalids, cripples, or constitutionally weak?" I pause for a reply.

HON. J. M. HAMBAUGH.

I have had the pleasure of making the acquaintance of the Hon. J. M. Hambaugh. I visited him and his interesting and excellent family, and they have enjoyed the hospitality of my mountain home. We had a long and interesting talk on bees, of course. Mr. Hambaugh was rather astonished when I told him we had but one flow of honey here, but that that continued from the beginning of the early spring until it finally closed up, as a general thing, in July. An eastern man has a good deal to learn when he comes out here to keep bees. You see, *we know something*. The first thing, however, that he learns—and the knowledge is quickly acquired—is the vast difference between the head and the tail of the bee. Any one can find that out in ten minutes, and not half try, and without a single bale of undeveloped intellect at that.

Mr. Hambaugh has been a member of the Illinois Legislature, and probably left the State for fear of committing a second offense. That's the way you see all the good people come to California. Friend Hambaugh is good because he wants to reform. I am not one of those who believe a man should be snubbed just because he has been a member of the legislature. Give him a chance to recover from the shock and retrieve his reputation. *You* wouldn't like it if you had just got out and nobody would speak to you. But I'll bet that Hambaugh was a wide-awake and a jolly prisoner while he *was* in, anyhow.

THE SEASON IN THE EAST.

I take the following high-flowing and boastful announcements from the bee-papers of the East for June: "Good prospects for a great crop;" "rolling in sweets;" "just rolling in the honey;" "bountiful crops expected;" "bright prospects;" "good honey crop expected;" "bees booming;" "a successful season expected;" "heaviest flow I ever saw." Do you expect us, Mr. Editor, to sit here quietly and have such insults thrown across the continent at us—thrown into our very faces? Well, go on. Inscribe them on your banners and your transparancies, and go out on your torchlight processions. *We* don't care. "Won't *we* go along?" No, we won't, and we don't torchlight in the same year with you. Besides, we prefer to select our own company. "You didn't say any thing to us." No, but we can take a hint. Every eye is turned on the Pacific Coast. Is there any thing loud in our quiet and dignified contentment? Aren't we as calm as the unruffled sea? Have a care how you conduct yourselves on your triumphal marches. Don't reflect on us. Don't say, "I told you so." Don't taunt us. The slumbering fires of our indignation may break forth at any time. *We* won't be responsible. I wouldn't care, anyway, if you *would* make a whole lot of bug-juice. I'm just mad.

APIS DORSATA NOT UNDESIRABLE.

THEIR PRACTICAL VALUE FOR THE UNITED STATES; OTHER RACES OF BEES.

By W. K. Morrison.

The editor of GLEANINGS is anxious to know something about my way of securing *Apis dorsata* for the purpose of attempting its domestication. In the first place, I hope, for the general good of bee-keeping, that a staid, respectable journal like GLEANINGS will never again make the statement that it did a few weeks ago about *Apis dorsata* changing the flora of America. Such a statement appears like a sound from the Dark Ages. What! even the savage would not believe such a statement. Suppose a fruit-grower applies to the Governor of Ohio for protection against the bee-keepers of his State, saying the bees mix up his apples and his strawberries, his pears and his persimmons, etc. Why, it pains me to discuss such nonsense. Are the readers of this paper aware that there are some 3000 species of bees in existence? These have been working through all the ages, and, so far as we can see, have never changed the flora of any country one iota.

The honey-bee has been at work in the United States some time now, and I fail to see that it has changed one single flower as yet. I know it would stagger the mind of most of your readers to be told how many species of bees there are in the United States. Now, it is to be hoped this sort of thing will be dropped. Talk about Prof. Wiley's lie—this one knocks it completely into the shade. Prof. W. can now poke all the fun he chooses at us.

Let us discuss a pleasanter subject. Most of your readers who write about *Apis dorsata* seem to take it for granted that it is the only bee capable of domestication; but this is a mistake, as other species are actually kept by the natives of these eastern countries. We have pretty accurate information of the following bees:

Apis Dorsata (natives make a business of its honey).

Apis Zonata (natives make a business of its honey).

Apis Indica (kept in hives).

Apis Bhotan (kept in hives).

Apis Unicolor (kept in hives).

Apis Mellifica (the one we cultivate).

Some bees of Central and South America have been partially domesticated. I know I saw notices of a certain species of *Trigona* as having been imported into the United States, but they were very far removed from the domesticated kind. The *Trigona* of the West Indies has some 1000 bees in a nest, while Mr. Stretch, while at Panama, counted a colony of *Melipona* with at least 100,000 bees in it, as he says almost countless, their nest occupying several (6) feet of a large hollow tree, and having large quantities of honey and wax. The bees were like a black cloud. Gardner says in his travels (giving a long list of *Melipona*), that, in the provinces of Piauhy and Goyaz, he found bees very numerous. In every house they have the honey of these bees. Many species, he says, build in the hollow of trees, others in banks; some suspend their nests from branches of trees, while one species makes its nest of clay, the honey of this species being very good.

Mr. Guerin found one of these nests with six queens (*Melipona fulvipes*). Bates, no mean observer, brought back from the Amazon 45 species of *Melipona*, mostly new species.

I know some editors of bee-papers who gravely discuss the uses of *Trigona* and *Melipona*, and who evidently do not know the meaning of the word "species." I see advertisements in GLEANINGS like this: "For sale—hybrid bees, $4.00 a hive." Now, friends, this isn't so. Nobody has hybrid bees in the United States as yet. Wait till we get *Dorsata* or *Indica* here, and there may be a chance to get hybrids.

One of the most painful reflections about the recent death of the great Langstroth is the

fact that there is no one to take his place as an author and student in apiculture. I know of editors of bee-papers who have never read Reaumur's work, the foundation-stone of bee culture. All these things make it difficult to convey to the average bee-keeper just what chances there are of improving practical apiculture by introducing new *species* (not races) of bees. The domestic animals of the United States are all introductions; and the introduction of *Apis dorsata* would probably, in my opinion, be of more importance than either ostriches or reindeer.

The more we diversify our business, the more likely we are to succeed. The introduction of a new species of bees would give us a standing in the eyes of the world we do not now possess. What I should expect from *Apis dorsata* would be:

1. A larger number of flowers visited having deep nectaries.

2. A larger area covered by its greater power of flight.

3. More wax produced.

4. Honey to come to us now going to bumble-bees.

5. A greater power to take care of itself against wasps, etc.

It is, of course, problematical somewhat as to what would be the greatest advantage till we know more about them. Certain it is, they are valuable, and compare favorably with *Mellifica*. I should be discouraged if I did not know how our own honey-bee behaves in the tropics. It is often said that *dorsata* is migratory in its habits; but our own honey-bee does the same thing pretty much. This is news, but it is a fact. A bee-tree is not a bee-tree very long in the tropics. When the rainy seasons come, enemies of all sorts come to eat their honey and wax, till, in sheer exasperation, evidently, the colony decamps, leaving his abode in the hands of its enemies. Bees in the tropics get no peace.

It may strike your readers as very strange, but flowers are scarce in the tropics. I suppose that Ontario is a better place for flowers than Brazil, under the equator. One of the lies we are taught in childhood is that tropical countries have lots of flowers. Dr. Miller would find wintering quite a problem in the equator—just as much so as in Illinois. For months the bees get hardly an ounce of honey. Then they are annoyed by swarms of ants, termites, and moths.

Then *Apis dorsata* is accused of working nights. So does *Mellifica*. Bees in the tropics work nights and mornings only, for the very good reason that the vertical sun evaporates all the nectar out of the tubes in the middle of the day. My own bees used to fly around moonlight nights in the tropics, and no wonder; for a moonlight night in Capricorn is superb; but I could never discover that they did any thing nights. On the eastern side of the Andes the little rivulets trickle down the mountain side till about 10 or 11 A. M., then stop altogether for the day. This is about the time bees stop till about 4 P. M., when work is resumed.

Lately *dorsata* was accused of being a great stinger; but among a certain class our own pet has a similar name.

A great amount of data has been collected about the bees of India; and the government of India has published a book about the bees of India that are kept in hives. If we can't do any better we can get the bees the natives have, and try them.

The bees of Bhotan are kept in hives, and are different from ours. It seems to me that, if these natives, with their rude hives, can keep these bees, we ought to do a *leetle* better.

The reports furnished to the government of India show that the bees of that country suffer from moths and men chiefly. They do not cultivate our bees—only Europeans do this. Our bees do not mix with theirs.

Bermuda.

[Our correspondent, Mr. Morrison, in his first paragraph, must surely have misunderstood me in what I said concerning *Apis dorsata*, on pages 390 and 396. On neither page did I say any thing about their "changing the flora" of America. The nearest approach to it was that they would be "out of harmony with the general flora of America," and this was but endorsing the opinion of that scientist and an authority, Mr. Frank R. Cheshire, whom I had just been quoting.

We have permitted the use of the term "hybrids" when referring to crosses between blacks and Italians, simply because it had become generally accepted. And in the same way we have permitted the use of the term "fertile workers" when we meant "laying workers," just the same as everbody speaks about the sun rising, when, in fact, it does not rise at all; or when we say the tea-kettle boils, when it is only the water in it to which we refer; or when we say the eaves drip, when it is only the water running from them. Even if we were to change the term "hybrid" to "cross," bee keepers all over the country would be continually using the term they were long accustomed to. As to the term "races of bees," it is not any worse than that commonly accepted by the whole human family when it refers to "races of men." If we must stop using the term "races of bees," then our geographies and our general literature must correct themselves in the use of the term African race, Malay race, etc. The Standard dictionary, the latest and best, gives as one of its definitions of race. "A stock or strain as of domestic animals or plants." "Race" as we have used it in reference to bees is correct according to this.

There is a tendency in language to give secondary meanings to words, and these secondary meanings often and even generally intrench themselves in the language of the masses so firmly that strict accuracy would really amount to inaccuracy.

But in reference to *Apis dorsata*. I am willing to take back any thing I said referring to the undesirability of bringing them to this country; and in view of what our correspond-

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ent has said in favor of points 1 to 5, it may be well worth our while to get them here.

In our next issue Mr. Morrison will tell of the plan he has for going through the Eastern countries, and how he proposes to carry it out, for, indeed, I believe he is just the man to introduce new races or species into the civilized world; and he will do it, too, providing the bee-keepers stand back of him, even if he does not secure an appropriation from our own national government. He has had wide experience as a traveler, and is well acquainted with all the intricacies and difficulties of travel among semi-barbaric peoples.—ED.]

BEE-STINGS AND RHEUMATISM.

NOT A CURE, BUT ALMOST A KILL; A SEQUEL TO MR. HART'S ARTICLE ON PAGE 386; FUNNY BUT SERIOUS.

By W. Hood.

Editor Gleanings:—Having been an interested reader of your journal for several years, especially the portion dedicated to A. I. Root and his garden, I usually welcome it on arrival as one of the family. In your May 15th number I was highly interested in reading pages 386,7, from the pens of Hart and Hendrickson, in regard to bees and rheumatism. After reading of the miraculous cure I almost felt like shouting "Eureka," for here was found a lightning-like cure that would knock out Electropoise and give "Pink Pills" a black eye in the first round, while I, in blissful ignorance of the medicinal qualities contained within the peaked end of the busy bee, had been chasing rheumatic pains up and down my leg with a bottle of liniment, and rubbing it in until the cuticle was almost worn away instead of applying a very small portion of the forty swarms out in the back yard, all of which, with the slightest provocation, would be more than willing to sacrifice their lives in my behalf.

Now, Mr. Editor, I am not writing this to air my apiary, nor to lay my sorrows before the public, but that others who may read it may be benefited by my experience as well as the experience of those who have been cured by bee-stings.

Some four years ago I spent the winter in the much-lauded State of Florida, and ever since then have been troubled some with rheumatism; but it never really settled down to business until about three months ago, when it located in the hip joint as a permanent settler, spreading out as occasion offered until it reached the end of my toes. In its infancy I got along nicely by wearing a cane; but as its growth increased I felt it very convenient to add a crutch to my outfit, and by so doing we got along nicely together. In all my wanderings it was my constant companion, reminding me that I was not so young as I used to be.

After a month or so of rather close companionship, the portion extending out beyond my toes got broken off, or at least I lost it somewhere, and felt so much better that I laid away the crutch and continued to hobble around the garden and greenhouse with the cane. About this time GLEANINGS wafted to me the good news found on pages 386,7, and before retiring that night I promised myself that I would cure that rheumatism or sacrifice the whole forty colonies of bees.

Accordingly, bright and early the next morning I visited the nearest hive and found the first bees just venturing out, wiping their eyes so they could see better which hive to rob next. I bared my ankle, and, as my bees are always ready for work of this kind, I reached out and gathered in No. 1. It did its work nobly. Nos. 2 and 3 did likewise. I reached for No. 4 and caught it on the fly. The little fellow, being over-anxious, could not wait till placed in position, but fired away and caught me just under the finger-nail. Now, six or seven being the regular dose for adults, and I being about as adult as I ever would be, decided to try about six. In catching No. 5 I made a little miscalculation, and smashed it so flat that, had it been used, it would have had to be in the form of a poultice. In smashing this one I seemed to have given offense to the whole outfit, each one taking it as a personal insult, and each one insisting on sacrificing his life whether I required it or not.

I have discovered during life that even rheumatism is preferable to some other things; and this being one of them, I retired in good order, or in as good order as a man can with about four quarts of angry bees playing tag round his face. I had decided to take the prescription on the sly, but was caught in the very act; and, during the morning, there were many smiles passed round the family circle at my expense.

I felt no inconvenience from the stinging until about 10 A. M., when I began to realize that something besides rheumatism had moved in. By 11 o'clock I was past navigating. The boys being in a hurry for seed potatoes, I got propped up against a pile of bee-hives and went to cutting potatoes. When my ankle became too painful I would stoop over and rub it to subdue the pain. At noon, with a little help I reached the house and lounge. I took my dinner on the installment plan.

After dinner the family gathered around to see my sore leg. After my ankle was bared to view they stood in silence, viewing the disabled member for a few moments; but instead of that sad and sorrowful expression that I had expected to see creep over the faces of that group I saw nothing but what I took to be suppressed merriment. In the hours of anguish and sorrow I looked for sympathy that I might be able to bear my burden with a lighter heart; but as I gazed into their faces I beheld not that expected sympathy, but in its stead a hidden smile crept over their countenances; and when

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they could contain themselves no longer the red-headed member asked in a serio-comic voice, "Have you been applying mud for the purpose of reducing the swelling?" Just then something dawned upon my darkened mind. With a little help I arose to a sitting posture and got my first view of that ankle since I had given it its medicine early in the morning; and of all the looking legs I ever saw, that one I think was the worst. A freshly polished stove-leg would look pale by the side of it.

I at first thought it had been dead for several weeks, and was unfit for further use; but the family, between loud bursts of laughter, explained away my fears by saying that the potato juice and soil rubbed on while cutting potatoes had given it the high polish. While the good wife removed the many coatings of potato juice and soil, the remainder of the family consoled me with such remarks as these: "His ankle is swelled just awfully;" "It's almost as large as a chair-leg; and unless the swelling goes down his legs won't be mates;" "He will either have to get the other one stung or have it dipped."

Now, Mr. Editor, my legs never were remarkable for their size, and, of course, time, together with the summer heat and wintry winds, has not left them much larger than old-fashioned churn-dashers; but they never refused to do duty when called upon in over fifty years that I have had them in use until the afternoon of the day when I first took a dose of bee-stings for the cure of rheumatism. I occupied the lounge till about 9 P. M., when I was taken with a chill that shook me from center to circumference. My teeth would have chattered like a dilapidated corn-sheller; but time had kindly removed a majority of them; and the remainder, having no connection with each other, passed harmlessly by on the other side. I was put to bed, packed between comforters, and the family took turns drenching me with hot drinks until I felt like a locomotive boiler with steam up ready for a start with a run ahead from Chicago to San Francisco.

The night proved to be one of the longest I ever knew; and long before the morning dawned I expected my wife to be a widow while I would be peacefully resting within the shade of those beautiful trees upon the meadows green where rheumatism and bees had ceased from troubling. The night, like all others, passed away, and my wife was not yet a widow; and, though inwardly groaning from the constant pain that was making life almost unbearable, I really felt thankful that she still had a husband. Though badly battered and time-worn, she is still willing to minister to his wants.

As time wore on, the swelling and pain increased. On the third day the doctor was called upon; but the combination kept right on doing business at the old stand. Mr. Hart informs us that on the third or fourth day his patient was seen to jump and kick. Now, on the third or fourth day after taking, nothing on earth would have induced me to even kick, unless it would have been to have had the writers of those articles standing right in front of me, facing in the opposite direction; but possibly their articles were all right, only they should have inserted a clause advising old people, invalids, and feeble-minded men not to monkey with the buzz-saw until they found out whether it was in motion or not.

Now, Mr. Editor, this is the twelfth day after taking, without even shaking, and I am still occupying the lounge most of the time. I owe no one a grudge; and after giving the subject much thought I have decided to throw no mud at the writers of those articles—at least, until after I have written my friend Poppleton to send me their size and disposition.

Spring Green, Wis.

[It is evident that too much of a good thing is not a good thing in your case. Homeopathic doses, in some instances at least, are better than allopathic. Fewer stings might have had a better effect. While your experience is ludicrous, it borders more on the serious than is really pleasant. We shall all hope nothing more serious will develop.—ED.]

BUCKWHEAT.

SOME VALUABLE SUGGESTIONS IN REGARD TO RAISING A CROP.

By Edw. Smith.

□I believe that comparatively little is known of its culture and usefulness. While it is a fact that it takes away a great deal of the fertility of the soil on which it is grown, if left to ripen, it is as sound a fact that, if turned under green, it is equal to clover as a fertilizer, only it does not retain its fertility so long. I will say, for the benefit of the inexperienced, that a good way to grow it for seed is to plow a piece of stubble ground, pulverize it nicely, and, if very dry, a light rolling may be necessary. □Buckwheat, like wheat, should be sown in a fine yet somewhat firm soil. It is well to have the ground smooth, as it makes it nice to harvest it. Set the grain-drill to sow one bushel of wheat. Then it will sow about 3 pecks of Japanese buckwheat. This rule, of course, varies with different-sized varieties, and must be judged by the sower; but 3 pecks is about the right amount to sow per acre.

The way I harvest mine, I cut it with a scythe or mower, and gather it up with a four-tined fork into small heaps, say a medium forkful in a heap. I work at it in the morning while the dew is on it, as it sheds off easily when dry. With the sun shining favorably, these heaps will be thoroughly dry by the middle of the afternoon. I then drive up to them

with a wagon having a tight-bottomed bed. Throw in a layer several inches thick, and with the fork beat it until all the seed is off. Then I throw off all the straw I can, and drive on and throw on another layer, and so on, leaving the wheat in the wagon. I then run it through a good fanning-mill, and it is ready for the mill or to sow again.

Any one considering this too slow work can cut it with a self-binder, binding in rather small bundles, and then thrash it with a machine. It is not well to rake it with a hay-rake, as too much seed is lost.

The best time to sow it, if wanted for seed, is the first and second weeks of July, as it then yields the most seed. But if wanted for bee-pasture it is better to sow during the latter part of the month or the first part of August. It will then yield a fair crop of seed, and as much nectar as at any other time, and will not give the bees a swarming craze, as is often the case if sown earlier.

I have learned by experience that buckwheat is one of the best egg-producing foods for hens that can be had. It sells at about 75 cts. per bushel at the custom mill here. The average yield is 20 to 25 bushels per acre, which, considering the short time it occupies the land, makes it a profitable crop to raise, as the same ground can be put in wheat again as soon as the buckwheat is taken off, and it has occupied the ground only while it otherwise would have lain idle. But the ground is a little worse for wear.

It may be sown at any time from May to August, or even September, if it is to be turned under as a fertilizer; but it grows best in the fall. I have heard that it makes good hay if cut and dried like clover; but I have not tried it myself, and therefore will not indorse it.

Carpenter, Ill., July 3.

[I can indorse almost every word of the above, from actual experience. I have only to add that, in our locality, or south of it, I would sow crimson clover at the same time with the buckwheat. From my experience I think the clover does better with the protection given by the buckwheat. As soon as the buckwheat is killed by the frost, or harvested, the clover then very quickly covers the ground. In our locality we have succeeded in getting an excellent crop of grain when the buckwheat was sown as late as the first week in August.—A. I. R.]

EARLY AND LATE REARED QUEENS.

By George L. Vinal.

One often reads in the various bee-journals about the advantages of late-raised queens over those raised earlier in the season. For the last six years I have tried to find out the difference, if any, and what it was, between a queen raised early in the season, one raised in the middle of the season, and one raised as late in the fall as it was safe to expect them to become fecundated (that was October), all from the same mother, and under the same conditions as regards number of bees in the hive, and feeding, if required; also, as far as possible, with selected drones, and drones from selected queens.

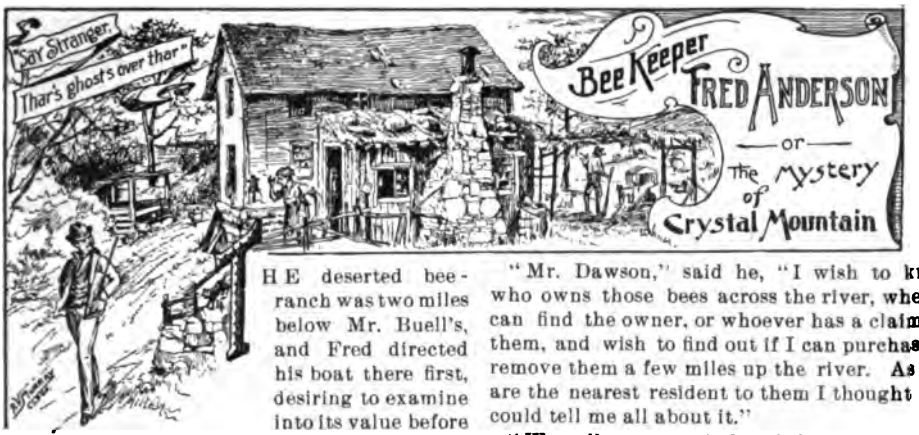
I find that queens raised late in the season are, as a rule, larger in circumference, by measurement with a very finely adjusted pair of calipers; also that they are from $\frac{1}{16}$ to $\frac{1}{8}$ inch longer. They are more fully developed in a general way, the same as a queen that is raised by a colony to supersede the old one. If raised in the fall I find that the next spring they commence to lay earlier, and are more prolific; that, as a rule, their progeny are larger and more industrious; that they are not so apt to swarm; they live from three to four years, and perform their work as queens better. In other words, as a rule they rear more and better brood.

We now might ask, "Why is this so?" If we look at it from a physiological point of view I think our question is answered by a little reflection and thought on the subject; that is, that the queen raised in the early or middle part of the season goes to work at once, and is forced, by the demands made on her, to furnish brood for the full capacity of the hive, for four or five months, and to commence to do it from the time she is ten or twelve days old, thereby impairing her vitality and strength, taxing them to their utmost, while the late-raised queen has a long winter's rest during the corresponding five months, thereby developing into full strength and womanhood before she is required to draw on her vitality to the extent of her earlier-raised sister.

If we look at the queen's oviduct, with a powerful microscope, we see the lining membranes of the early raised queens are thinner than those raised late in the fall. I think this shows impaired vitality. From my observations I have come to the conclusion that a queen raised in the fall is stronger, and has, through the winter, become more vigorous before being called upon to perform her natural functions to their fullest extent, thereby having time to store up vital force. Having gained strength, and developed to their fullest capacity all of her organs of productiveness before she is called upon to use them, when she does that by the strength gained by her rest and development in early life, she is better prepared to stand the strain that is required of her during the following season; and when that ends she has another long rest to recuperate her vitality before she is called upon to go through another season's work.

Charlton City, Mass., June 15.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.



HE deserted bee-ranch was two miles below Mr. Buell's, and Fred directed his boat there first, desiring to examine into its value before seeing Dawson. He found the things about as described by young Fiske. The pile of hives were scattered as stated; the three colonies of bees, the cabin with a few boards off, the door on the ground, and a few shakes off the roof. The hives could be made serviceable by using a few more nails; and, though the frames were scattered, and many broken, he was fortunate to find a crate of frame material that had never been used. He counted up fifty hives, and found another three colonies of bees in the bushes.

Mr. McBurger had evidently fitted up the place for a permanent residence; for, sticking up at one side of the cabin, there was an inch water-pipe. This led off through the weeds, evidently some distance up the river or to a spring. Fred traced it into the bushes some hundred feet away, where he found it disjointed.

After his inventory Fred was anxious to see Mr. Dawson, and accordingly navigated his craft across and down the river to that gentleman's abode, which was a full half-mile away. Dawson hailed from Arkansas, on the Mississippi, and naturally gravitated to a river location in California. He evidently belonged to that class that are unfortunately "born tired," and had never desired to cultivate any other trait.

His wife, a lean, angular woman, with an aspect of extreme acidity, was chopping a few sticks of wood toward the rear of the cabin, while the man was mending a fish-net which hung over a frame near by. There was the usual number of urchins and dogs upon the premises. The latter came down to the landing in noisy and menacing attitude, and Fred held his craft off shore until the animals were called away and kicked into silence by one of the boys.

Fred, not wishing to spend much time, after the usual compliments and the assurance that this was Mr. Dawson, proceeded directly to business.

"Mr. Dawson," said he, "I wish to know who owns those bees across the river, where I can find the owner, or whoever has a claim on them, and wish to find out if I can purchase or remove them a few miles up the river. As you are the nearest resident to them I thought you could tell me all about it."

"Wa-a-ll, stranger," drawled Dawson, "yer want ter know a good eel, and yer have enumerated yer idees so fast, an' run 'em all onter a string tergether, that it's kinder confoosin, to my understandin'."

The woman had halted in her chopping, and had readily taken in the questions, and, in a shrill voice, said, "Why, Dad, you must have a pow'ful understandin' not to grip onter them sentiments. He just wants ter know—"

"Now, Mariar," said Dawson, "you jest lock that fish-grindin' mouth of yourn jest whar it stands, open or shet. The Bible says things must be done decently an' in order; an' order is heaven's fust law."

"Ha, ha! that mout be so," said the woman; "but that fust law must hev stepped out or been takin' a nap when *yer* understandin' was born."

"Thar, now, Mariar, that'll du. The Bible says a woman—"

"Quotin' Bible again," said Mariar. "Mebby you'll make the stranger b'lieve yer a Methody preacher. Say, stranger, hev ye got a bottle of whisky about yerself or boat? If ye hev, jess shake it at Dad an' see how nimble he'll climb down off'm his Bible-quotin'."

"Hokey pokey, Mariar! what's the matter with yer? I say, now, shet up, an' I mean it," said Dawson in a loud and excited tone, and with a menacing step toward the woman. Mariar had evidently been there before, and knew the limits of her sarcasm, and, hastily gathering up a few sticks of wood, retired to the cabin."

"Now, stranger," said Dawson, "jest unlimber yer fust proposition."

Fred, lending himself to the humor of the occasion, said: "Well, sir, I am here."

"That's a fac', sir; sensible; can't be contreverted; decently an' in order," said Dawson; "and now, stranger, pull the next off'm the string."

"Where is the man that owns the bee-fixings across the river?" Fred asked.

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"It's my painful dooty," said Dawson, "to inform you that it is supposin' that he went tu the bottom of the river; and may be is thar yet fur all I know, fur he never was found. Yer see, stranger, them ar bees gether the most of their honey from rattleweed posies, which is plentiful like around hyer; an' whoever eats their honey or gits stung by them gits more or less rattled; an' then, stranger, I don't like ter say it of a dead man, an' a friend; but the owner of them varmints liked Colusa whisky pooty well; and atween rattleweed honey and tanglefoot whisky his mortal remains are somewhar, I'm sposin', in the bottom of the river."

"Then if the owner is dead, who owns the things now?" said Fred.

"Nobody, as I know on; they've been thar now nigh on ter two years, an' nobody has teched them except now and then a fool camper, an' they allers git away quick an' rattled like."

"But I supposed," said Fred, "that, after a man's death in this State, in case he had no relatives or heirs here, the public administrator would take possession and settle up the estate."

"Yaas, that's the law," said Dawson; "but as the body of McBurger was never found, it's only a supposin' that he war drownded. He mout a run away, yer know. Bout a year arter the mystarious disappearance the public administrator hooked on to the affair fur a little recreation like. When he come hyer the fixins looked all stove up, like they'd had a cramp; an' the few bees that war left, as yif bein' aware they war monarchs of all they surveyed, administered on the administrator afore he had a chance to administer on them. He recreated right lively amongst the bushes—a good eel more so than he expected. I heerd he reported at Colusa with his eyes shet, an' that the fixin's war no good, an' his great-gran'mother, or some other remote relative, mout have them afore he would try to administer thar agen."

"Then I understand," said Fred, "that no person has a claim on the property, and the public—"

"Now, hold on, stranger; one thing at a time, decently an' in order," said Dawson. "The only claim I knows on is my claim of $10. McBurger owed me fur pervisions—bacon, eggs, an' sich."

"There's nothing, then, to prevent my taking those bee fixings up the river and making good use of them?" said Fred.

"No," replied Dawson; "nothin' 'ceptin' that little $10 'count."

Fred hesitated a moment about paying the money, for he had doubts about the correctness and validity of the account. On the other hand, he reasoned that, if he did pay him and take his receipt, he would have something to show that would in a measure exonerate him if another claimant should appear; furthermore, the things were going to ruin where they were; and as the success of his plans depended upon his securing the outfit, he said, "Mr. Dawson, I am willing to pay your account upon condition that you sign a receipt for the same;" and Fred pulled out his memorandum-book and proceeded to write a receipt in full with privilege of removal.

"W-a-ll, stranger," said Dawson, "down in Mizzoori and Arkansas, whar I have lived, we didn't do things that way. A man's word war considered as good as ary writin';" and, turning suddenly to Fred, said he, "Whar you frum, any way?"

"I'm from the State of Maine," Fred replied.

"Ha, ha! thought so," said Dawson. "Yankee!" and he said it in a sarcastic tone not unmingled with a tinge of hatred. "Yankee, on the pickayune order. Yas, Yankee, I'll make my mark on yer little paper;" and Fred noted the malignant gleam in his eyes as he made a cross for signature, without comment. Fred put the proper ornaments around the cross, and, taking out his purse, selected a $10 gold coin from among several others of larger size and the same color. The same malignant gleam again appeared upon Dawson's face.

Fred was glad to get away. It was well toward evening when he said good-by to Dawson; and as the latter said "good-arternoon," he remarked, "Spose you'll have ter sleep in the cabin over thar."

"I suppose so," said Fred as he hastened away. As he passed the front of the house the woman suddenly stretched her head out of the little square window and spoke in a sort of stage whisper, "Say, stranger, thar's ghosts over thar—bewarr"—and her head as suddenly withdrew.

Fred Anderson was not a coward, neither was he afraid of ghosts; but the words and ill-concealed actions of the Dawsons gave him some alarm, and enough food for thought until he had crossed the river. He was convinced that Dawson was a low-down river cut-throat, and he had no doubt that he had evil designs against him that very night; and before landing at the forlorn bee-ranch he had outlined his plan of defense in case Dawson should molest him. As he landed his face brightened, and, laughing aloud, he said, "Ha, ha! he hates the business ways of a Yankee; but I'll play him a Yankee trick he will not soon forget, if he gives me a chance;" then he began to sing, "The night is stormy and dark, my lover is on the sea;" and his thoughts were of the mad but charming Alfaretta.

The sun was just sinking out of sight, leaving tints of crimson and gold over all of the western sky. Darkness would soon settle over land and water, and Fred felt as though every moment wherein he could see to work should be improved; and during the next hour the portable things—empty hives and their frames,

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bottom-boards, and covers, were loaded upon the flatboat; and then, as the shadows began to deepen, he shoved the boat off, ran it down stream a few rods, then into a little cove surrounded by those tall tules that grow so luxuriantly upon every slough along the river. Here it was secure from observation; and, tying it fast, he again leaped on shore and made his way through the willows to the deserted apiary. The hives, with their buzzing inhabitants, were then attended to. With the aid of a little smoke from an ignited piece of rotten sycamore wood the bees were driven inside, and a piece of wire cloth tacked closely over the entrance. The cover was then removed, and a square of gunny sacking nailed in its place. The porous cloth would give ample ventilation, and still prevent the bees from escaping. The six hives were thus prepared for removal. It was then too dark for further work, and Fred bethought himself of his lunch-basket, with an appetite sharpened by his long afternoon's labor on the boat and on shore. He refreshed himself upon bread, beans, and canned meat from the Ghering ranch, and milk and a few nicknacks given him by his friends the Buells.

Fred's work in preparing his bee-keeping outfit for removal had kept his thoughts of danger in abeyance; but now with nothing to do but to sit still in the gathering darkness, and think, every motion and word of Dawson and his wife came vividly to mind; and in like manner all of the weird stories he had ever heard came floating unbidden into his imagination. The flapping of some bird in the trees, the splash of some prowling animal in the water, or the hoot of an owl, all had a startling effect; and, though the hours dragged wearily, he was thus kept on the alert for any possible danger.

Toward midnight the skies began to lighten up, as they often do in this western country, and things that were not visible an hour previous could now be dimly seen at some distance. Fred had kept his post well under the trees and near the river; and, though he was expecting Dawson, still he hoped that his suspicions against the man were groundless. Thus expecting and not expecting, his heart gave a great throb as a boat with one occupant came silently floating down the river with the current. A silent movement with the one oar sent the boat as quietly to the shore. The slouch hat and slouchy form, dimly seen, revealed the man Dawson. Fred quietly stole away past the cabin and alongside the old water-pipe. Dawson evidently supposed that Fred was asleep in the cabin. The absence of the flatboat apparently disconcerted him, for he peered into the darkness up and down the river-bank; but he soon turned his attention toward the cabin, and stealthily approached it. He silent-

"The night is stormy and dark, my lover is on the sea:
Let me to the night winds hark, and hear what they say to me."

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ly entered, and, finding nothing but weeds and rubbish, came out and walked slowly around it. Discovering no one within or without, he lost his caution and sat down upon an old tree-stump a few feet in front of the cabin, and vented his anger and disappointment in words.

"That Mariar said suthin' to the spindlin' Yankee about ghosts that's jes scared him outen his boots and the kentry; ef she'd jes kept that ar clapper tongue of hern quiet—but it's talk and gabble, like all onreasonin' wimmen. Now the Yankee has got away with that receipt on that money. He had a hunderd dollars or I'm no jedge of yaller metal. I could a settled his Yankee hash afore this time; an' with a piece of railroad iron he'd made a good mate fur McBurger off Lone Tree Point."

"Lone Tree Point" came like a startling echo in a loud whisper from the cabin. Dawson sprang to his feet with evident alarm. "What in Heaven's name is that? Somebody's in the cabin."

Again he entered it, and, with trembling fingers, lighted a match. This revealed vacancy, and he came out and passed around the building again, examining closely. Dawson was at heart really a coward; and though he scouted the idea of there being ghosts, and was bold to commit evil deeds under the cover of night, it needed but a spark of the apparently supernatural to arouse all the superstition there was in his ignorant mind. As he halted again near the corner of the cabin he said in a perplexed tone, "Durn me if that isn't str—"

"Jeem Dawson," said the whisper, in a broad Scotch accent, almost in his ear.

He sprang away from the cabin, and said, in a suppressed and terrified voice, "Donald McBurger."

"Aye, Jeem Dawson," said the whisper; "weel ye ken Donald McBurger. Me bones rist beneath the waters off Lone Tree Point; but, Jeem Dawson, me speerit follows on yer footsteps. Yer days o' evil deeds draw nigh to an eend." Then in an intense whisper, "Jeem Dawson, frae this hour ye are doomed, doomed, doomed."

The now thoroughly frightened man turned to flee; but a new terror seized him; for, upon the very stump where he had been sitting and plotting, there stood a figure in white. It looked colossal and headless in the darkness, and, pointing toward the river, it uttered such a blood-curdling shriek that Dawson gave an answering yell and fled toward his boat as though all the minions of darkness were behind him. The white figure seemed to float through the air, following him and uttering another shriek. Dawson threw himself into his boat, his voice venting itself in a half-audible, animal whine, and the quick rattling of the oar-locks of his boat gave evidence of his desperate efforts to get away.

Upon the apparition of the white figure on the stump, Fred Anderson was nearly as much startled as Dawson. Fred was playing upon Dawson's superstition by having a ghostly talk to him through the old water-pipe. When the figure arose so suddenly and gave such a shriek, his knees knocked together, and his hair nearly elevated his hat, and he would have run in the opposite direction as fast as did Dawson toward the river, but he was spellbound. He saw the figure apparently float after Dawson, and then it disappeared on the river-bank; and, after some moments of wondering in perplexity what he should do, he heard a voice. It sang:

The night is stormy and dark,
My lover is on the sea;
Let me to the night winds hark,
And hear what they say to me.

Fred sprang forward, and almost shouted, "Why, Alfaretta Buell! are *you* here? Is this your very self?" and he grasped her by the arm.

SUPPLYING THE HOME MARKET.

CALLING UPON OLD CUSTOMERS; SELLING FIRST AND SECOND GRADES FOR JUST WHAT THEY ARE.

By F. A. Snell.

In about five weeks after my first visit is made to town No. 1 I again take a trip to the same place, with a supply of honey. On arrival I first call at the grocery where I left my honey to be sold on commission. The grocer informs me that he has sold quite a large part of my honey, and would like to have a new supply. This time he is ready to buy, and I sell him quite a lot of the comb and also some of the extracted. After this time I sold him hundreds of pounds each year so long as he remained in the business, and, later, to his successor.

The others with whom I dealt on my first trip were next seen, and found ready for a new supply. When room would permit, and a number of cases of honey were taken, I would place the cases three or four deep, the smaller at the top, which we all know presents a very neat view of the honey-combs through the glass in the side of the case. One case was set to one side, from which to retail.

The grocers have, without exception, been pleased with my arrangement of the honey when so placed. Pails or cans are also placed where they may attract attention, the label being always placed in full view of those entering the stores.

I have found it very useful to give each grocer some hints as to where the honey should be kept during cool weather in fall and winter, so that it may not deteriorate. I have found that, nine times out of ten, if I say nothing about the matter, the honey will be put in the coldest part of the store, or in a back room, except the one

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case from which to retail; and in one case the larger part of the purchase was put into a damp cellar, and nearly ruined. The same I have found to be true in selling to private parties.

The bee-keeper must do a great deal of talking along this line of instruction. To old customers I do not now have much of this to do; but with new ones it seems as necessary as ever.

Right here is a very important point for all bee-keepers to consider. As good honey as can be produced may be nearly ruined by unwise handling; and when such deteriorated honey is consumed it disgusts the consumer, nearly ruins future sales, and, where hundreds of pounds could have been sold, only tens are disposed of.

After supplying with the honey all the dealers named, and a few minutes spent in pleasant conversation, I take my leave, with the understanding that I will supply them so long as my stock of honey lasts; or, if no more is on hand, to call on them the next season if a crop is secured. And so I have aimed to keep my trade in all these towns by keeping them supplied when I have had any honey to sell, always aiming to make our deal as pleasant for my patrons as for myself. The honey should be well ripened, kept later in a hot dry honey-room, put up for sale in the neatest way possible, and each package labeled with the name of the producer, etc., and sold for just what it is. If the honey is No. 1, sell it as such; if not, or only No. 2, use no deception, but deal honestly. In complying with the above, trade once gained will be held, and a clear conscience also.

Milledgeville, Ill.

[I want to put a good big emphasis on your last two sentences especially. Selling second grades for first may put a few extra pennies in the pocket for the first deal but it kills future trade.—ED.

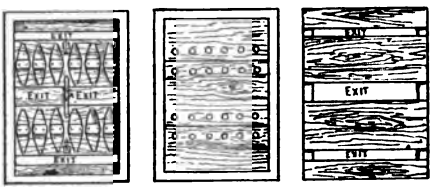
ANOTHER BEE-ESCAPE.

IS IT TRUE THAT EXTRA EXITS FACILITATE THE ESCAPE OF THE BEES FROM THE SUPER?

By W. J. Reddish.

I notice in GLEANINGS for June 1, in the advertisement of James Pearson, the assertion that 6 times 1 are 6, which fact I can not dispute. Now, I say 4 times 6 are 24; hence the new Reddish bee-escape is as good as four Jardine escapes. I inclose three views of my escape—top, bottom, and interior. I made this one last winter. It is 14x20 inches, and just covers the top of the Dovetailed hive. It is 1⅞ in. thick. I have tested it twice. The first time I placed it on a two-story hive. It was a good strong colony, with about half of the bees above. In less than two hours there was only one bee above; the second time, in one hour and a half, less than six bees were above. This escape is reversible, and will send the bees down or up, as you like, which I think the new Jardine would not do; for, if put on one way, the doors would hang open.

Had I known how successfully this escape was going to work I would have made one and sent it to you. I inclose a sample of the spring used for inside construction. The view show-



REDDISH'S BEE-ESCAPE.

ing 24 holes is the top. The holes are ¾ inch; the material is ⅜ in. thick, with strips ⅞ x ¼ in., tacked around to form a bee-space. The interior view shows the construction of that part. The two end blocks and center strip (marked A) are rests to keep the top from settling on the springs. This part is made of four strips ⅞x⅜. The side ones are 20 inches long; the end ones are 14 inches long; the corners are halved together, making a frame 14 x 20. This frame I made out of the lumber of an old trunk. The bottom is screwed to this frame, and then the blocks with the springs tacked to them are screwed to the bottom-board. The dark shading of the interior view shows the exit. The end ones are 1 in. wide and 12¼ long. The center one is 2 inches wide, and the same length as the ends.

The bottom view shows only the exits, which view is not necessary, as you have it in the one showing the interior.

The principle upon which my escape works is the same as that used in a fly-trap that I made about ten years ago, that let the flies in and they stayed in. This trap lets the bee out and it stays out.

Dallas City, Pa.

[I have before stated that the Porters claim that increasing the number of exits does not facilitate the escape of bees; but in view of the fact that two or three of our friends seem to insist that it does, I wish to ask for reports. It takes usually anywhere from 10 to 24 hours to get bees out of the supers by the ordinary Porter escape with one exit. Now, suppose some of our comb-honey friends put two or three of these escapes (Porter's) in one board, and then watch results closely, inspecting the super every few hours. I am rather of the opinion that the Porters have possibly made a mistake in deciding that extra exits do not help the matter. In the case of the Reddish escape above, or a board having an equal number of Porter escapes, I am also of the opinion that, if smoke were used, the bees could be forced nearly out of the super inside of two or three minutes. This would be especially true of black bees and hybrids. Such quick work would be a great convenience at out-yards.

We will try to test the matter here, and hope our friends will let us know, including the Porters themselves.

Their escape itself *could* be made with a double exit, without materially increasing the expense, and I feel quite sure they would be willing to make them so, if they were fully decided in their own minds that such a change would be an advantage.

Perhaps it might be well to state that Mr. Reddish's escape is based on the principle of the Porter, and would, therefore, be an infringement; but I feel very sure the Porters would not make any objection to a few being tried, provided they were not offered for sale, nor made in any considerable numbers for private use.—ED.]

BEE-PARALYSIS.

Question.—I fear my bees have what is known as "bee-paralysis." At one hive the bees seem to be swollen up, many of them, and have a shaking motion, and the well bees are dragging off those the nearest to lifeless, while the dead are quite thickly strewn about the hive-entrance. On opening the hive I find many of these bloated, shaking bees near the ends of the frames, in and about the rabbets of the hive, and in out-of-the-way places. The queen seems to be very prolific; but these trembling, dying bees seem to take the disorder rather faster than young bees emerge from the cells; hence, instead of gaining in numbers, as are my other colonies, this colony is dwindling. What is the cause of this trouble, and what can I do to help them? Does the trouble come from the queen, and will a change of queens cure it? The queen is a daughter of one I purchased a year ago, but the bees from the mother and those from sisters are all right so far.

Answer.—I think from the description given that there is no doubt that our questioner's bees have what is now called "bee-paralysis," but what was formerly known as "the nameless bee-disease." This disease was not known, nor any attention called to it, at least previous to the eighties, if I am correct; but since its first appearance it has made rapid strides, so that to-day there are few apiarists who have not seen something of it, either in their own apiary or that of some other person. What the outcome is going to be, no one can at present tell; but so far the disease seems to be gaining ground, in the United States at least.

In the question, "What is the cause of this trouble?" we have the *great* question; for if we fully understood the cause, the remedy would soon be found; but so far, unless I have been remiss in my studies, no one is sure that he knows what is the cause. Guesses many have been made; but as the years roll by it soon becomes apparent that said guesses did not hold good, and I doubt our having any thing reliable as to the cause of this plague to the bees and the bee-fraternity. There being nothing at all certain about the cause, to answer the question "What can I do to help them?" would be little more than guesswork also. When the disease first made its appearance, a few of the knowing ones told us the whole trouble came from not letting the bees have access to all of the salt they wanted; so it was said that, if a strong brine were made, as strong as that made for pickling meat, and this brine poured or sprayed over the bees and combs, it was a certain cure, as those recommending said cure had tried it, and were sure it was a *positive* remedy. But when this positive remedy was tried by bee-keepers in general, it soon became apparent that it was of no use as a general remedy. Then salicylic acid and carbolic acid were recommended, not only as a cure for the disease, but as a preventive as well; but when the general public came to use them, and apiarists, whose knowledge was the practical side of bee culture, the verdict rendered has been, "With no effect." Thus, so far as I know, "what can I do to help them?" remains an unanswered problem.

Next we have, "Does the trouble come from the queen, and will a change of queens cure it?" In reply to this I must say as I did of the other remedies, that there were those, years ago, who told us the whole trouble came through the queen, and that, if the queen was killed and another given in her place, then, as soon as the bees hatched from the new queen, the disease would begin to grow less and less; and when all of the bees from the original queen had died the colony would be free from the disease. This statement took hold of bee-keepers to a greater extent than any of the others, and hundreds have tried a change of queens, only to find that it had no effect whatever.

Last year the alarm over the rapid strides of the disease in the South became so great that the editor of GLEANINGS thought it best to pledge all queen-breeders to certain stringent rules regarding destroying all colonies found having the disease, etc., and nearly all of the queen-raisers of this country subscribed to the same. When these rules were published I knew that I had a colony showing signs of the disease; and as I wished to conduct some experiments with the same I did not subscribe to the conditions, and I presume it was wondered at by some that Doolittle's name did not appear with the rest. Without going into minute details, I will say that this colony proved to be the worst of any thing I ever saw (I having had two cases of the kind some years ago, as reported through the bee-papers); and when fall came there were perhaps five hundred shaking bees remaining in the hive, with a little brood in one comb, as a result from one of the most

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populous colonies I ever saw in early May. During June, July, and August the ground in front of that colony was literally strewn with dead and dying bees, and several bee-keepers who came to visit me said they never saw any thing equal it in all their experience. The other colonies all remained healthy, which proved that the disease is not a contagious one, by way of spreading to hives in the immediate neighborhood of the diseased colony. When I saw that the colony could hold out no longer I took the queen and gave her to a good colony, so I could be sure she might come through the winter all right, which she did. Did that colony have the disease this season? No; but, on the contrary, it was almost the first one in the apiary to send out a rousing swarm, and to-day both swarm and parent colony are doing "land office" work at storing honey in the surplus apartment.

All my experience has been in keeping with what I find in the last *Review*, from the pen of F. L. Thompson, where he says, "Several sales of bees and queens have been made, the parties buying having full knowledge of the circumstances. In no case did the disease break out among those bees, or from those queens, in their new localities. In one instance, queens were taken from diseased colonies, before the honey-flow had begun, and put in healthy colonies in their new location without any contagion resulting."

Thus it will be seen that the efforts on the part of GLEANINGS toward queen-breeders was a mistaken one. This I think I have proven conclusively; but to add a little more proof, I will say that, on the old stand of last year's diseased colony, was set, the middle of April, when I removed the bees from the cellar, a colony having a queen purchased last July of one of the parties who subscribed to the rules of GLEANINGS. This colony showed no signs of any disease last year; but to-day it is in a much worse state than was the colony on that stand a year ago—bees by the hundred being out in front, dead and dying every day, with bloated abdomens and shaking steps. This, with what Bro. Thompson says, points toward *location* as the cause, and I might indorse this as correct were it not that, in my former experience, after two years, and the death of a colony on the same stand each year, nothing more was seen of the disease till the sudden breaking-out of the disease in an entirely different part of the apiary, last year. I am positive that the *queen* has nothing to do with the matter, and that all of the remedies spoken of above are of no avail; but further I am not positive. Who will tell us more about it?

[The evidence secured a year or so ago seemed to show that bee-paralysis is communicated sometimes by the queen, sometimes by the combs and hives, and sometimes by the surroundings. *One* case in which disease follows the introduction of a queen from a diseased colony is worth a *dozen* other cases in which no disease follows the introduction of such queens, in the way of proof. Those who have asserted that bee-paralysis follows from the introduction of a queen from a diseased colony may have been mistaken; but among them there is Mr. T. S. Ford, who has had a larger experience with the malady than any other man in the United States, and he is equally positive that the queen has a good deal to do with the matter. In any case, as long as there is an uncertainty—that is, a disagreement among authorities, it is safer—far safer—to regard the disease as one which can be transmitted through the queen. We may drive a hundred times along the side of a precipice, without harm; but as long as there is a safe road away from the precipice, it is better to take that road. It seems to me, until we know more about bee-paralysis, its cause and cure (and in my opinion we know very little about it, except that it is spreading over the United States), it would be a sad mistake for queen-breeders to ship queens from colonies having bee-paralysis, or even keep such diseased colonies in the yard.

I agree with you, that we know of no cure. But I do not quite agree that all of the remedies spoken of were of no avail. I think the most we can say is, we do not know positively, although the presumption is that they are of no avail.

It is too bad that we do not know more about this disease. We are pretty well acquainted with *Bacillus alvei* as found in foul brood; but whether the microbe of bee-paralysis is *Bacillus* or something else, does not seem to be settled, although Cheshire calls it *Bacillus Gaytoni*. I know of no living microscopist or scientist who is more competent to give us information on these subjects on which we are so much in the dark than Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*. He probably has the finest and most expensive microscope and accessories of any bee-keeper in the world. Perhaps Mr. Cowan can help us.—ED.]

C. V., Wis.—Authorities do not agree as to whether or not queen-excluders diminish the amount of honey. Very many use the zinc, and claim it makes no difference. When the zinc is not used, sometimes queens go into the supers.

M. S., Pa.—In relation to your bees swarming so repeatedly, and your not being able to stop them, I would say that the trouble may be owing to the cramped quarters in which you put them; or it is possible you hived them on empty frames without foundation; or if on such frames, in a hive exposed to the direct rays of the sun, without shade-board or other shade. Lack of shade, too small an entrance, no foundation, the absence of brood (particularly unsealed brood, which you could get from another colony), all tend to make swarming more frequent. But sometimes a colony *will* swarm anyhow. It gets the fever so badly that it is almost impossible to stop them from leaving

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every time they are hived. When bees get to acting in this way I would make them entirely queenless. This will make them stay at home even if every thing else fails. After they get the combs drawn out, and get to work and settle down, and the swarming season is over, introduce to them another queen.

AT last pure Cyprian queens are to be had. See Mrs. Atchley's card in the advertising columns.

PARTICULARS and program regarding the next North American, to be held at Lincoln, Neb., will be found on page 547.

THE Mystery of Crystal Mountain is not altogether explained yet. The chapter in this number is thrilling with interest, and the subsequent chapters are not less so, so far as I have read them.

I STILL use the bicycle in going to and from our out-yards. With the exception of one two-horse wagonload I have been able so far to carry down tools and a few minor sundries on the wheel; and in some cases I have gone so far as to carry on my back, pack-peddler fashion, supers of sections containing full sheets of foundation when it would happen that there would be a colony or two that just *had* to have more room before the next wagonload; and the only way to give it was to strap the supers on my back.

THE DOOLITTLE METHOD OF CLIPPING QUEENS' WINGS.

I HAVE just been trying this method, and find it works to perfection. At our out-yard I found that one swarm had left, and I determined to clip the queens' wings of all colonies that were liable to swarm. To go clear home and get a pair of scissors would have taken too much time; so I determined upon the Doolittle plan. I pulled out my knife, opened it, and stuck it into the hive-cover, so as to have it handy. I found my queen, and picked her up by the wings, with the right hand. With the left, I grasped the queen by the thorax, between thumb and forefinger, and released the hold upon the wings. Then, with the right hand free, I carefully shoved the small blade of the knife under one of the pair of wings. The thumb of the right hand was then placed upon the blade edge, just over the wings. A slight drawing motion of the knife over the pair of wings against the thumb severed them, and her majesty quietly dropped between the combs, an inch below, and disappeared. This I did with several queens, and a pair of scissors is nowhere to be compared with it.

I have never tried Davenport's queen-clipping device, although I am satisfied it would work. But the special convenience of the Doolittle method is that every one has a pocket-knife; and whenever he comes to a hive where a queen's wing is not clipped, all he has to do is to whip out his knife and clip wings then and there before she gets out of sight.

It should be stated that the knife should have at least a moderately keen edge, although a very dull edge can be used by varying the method somewhat. Hold the queen by the thorax, between the forefinger and thumb of the left hand. Place her gently on her back on the hive cover, and then with your dull-pointed knife cut through the wings into the cover. This is no theory, for I have tried it with the dull blade I had, because I assumed that there would be *some*, at least, who would have a dull knife, and would, perhaps, like to know how to use such an implement; but the sharp blade against the thumb is very much better.

THE VALUE OF DRAWN COMBS FOR THE PRODUCTION OF SURPLUS HONEY.

I AM becoming more and more convinced of the great value of drawn combs. Supers containing sections with full sheets of foundation do very well; but it is plainly evident that those supers containing drawn combs are entered more quickly, and filled with honey, and capped over. My attention was especially called to this by noting how much more readily the bees would fill and cap over supers containing half-depth drawn combs for extracting. In the case of colonies of equal strength, the extracting-combs will be filled and capped over before the bees have begun to draw out a full sheets of foundation in the comb-honey supers —at least, that is our experience. For experiment, where some of the colonies were holding off and didn't seem to draw out the starters, I put on a super containing drawn combs, and, presto! the bees went into them immediately, and in a few days they were filled with honey and capped over.

DRAWN COMBS FOR CONTROLLING SWARMING.

I feel hopeful—yes, almost confident—that we can, to a very great extent, at least, control swarming, even in the production of comb honey, providing that the drawn combs are used in the sections. So far, at least at our out-yard, we have had no swarms that have had plenty of drawn comb. But we have plenty of swarming from colonies having supers on them of foundation not yet even touched.

You see, the point is right here: Such a colony—that is, one having a super containing full sheets of foundation on top, and which the bees have not yet touched, is, in one sense of the word, a colony cramped for room—that is, it

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takes *pressure* to get the bees once started to drawing out the foundation. The brood-nest must be literally crammed full of honey; and even then this condition may exist for several days, and the probabilities are that queen-cells will be started, and that the bees will begin to loaf and make ready to swarm; and by the time sections are beginning to be drawn out a little, these same loafing bees have got into the habit of loafing, and the consequence is that the colony does not begin to do what it might have done had it had drawn combs. In the production of comb honey under our present method, it takes *pressure* to force the bees out of the brood-nest into the sections.

It takes a great deal of their strength and honey, and the *pressure* must be great enough to excite swarming before they will actually commence. In a wild state, except in the case of swarms, bees have to build comparatively little new comb every year; and as soon as honey comes they simply store it away in space already provided. Now, is it not true that, in the production of *comb* honey, we are asking the bees to do very much more than Nature asks them to do in their natural environments?

The Dadants run for extracted honey, and, of course, give the bees combs already drawn. It is well known that they have little or no swarming. While their large hives in a measure check natural increase, I believe that the drawn combs, empty and all ready for the incoming surplus, have more to do with it.

"But," you say, "how are we going to have drawn combs in sections?" Well, I would save all that are unfinished, and level them down by the B. Taylor method. But then, you urge, those unfinished sections left over would not begin to be enough. Perhaps not. Well, what then? I believe that, in the near future, from present indications, a foundation will be made having cell-walls and bases, natural thickness, the walls being ⅜, ½ inch, or deeper. But for the present I will not say any thing more.

Later.—After writing the foregoing on the value of drawn combs I find the following in the *American Bee-keeper*, just at hand, from the pen of G. M. Doolittle:

> Some have the idea that foundation is preferable to frames full of comb. This I think a mistaken idea, for the bees must consume some time in getting the foundation worked out to full combs, to say nothing of the expense of buying it, or the work of putting it into the frames. Foundation is good in its place, and I use very much of it, but I have it all fitted in frames, and drawn into combs by the bees, or have frames filled with nice worker combs by the bees building the same. I can not see any sense in melting it up, or allowing the moth to consume it.

Mr. Doolittle expresses what hundreds of other practical bee-keepers believe. If drawn combs are valuable in *extracted* honey, why may they not be equally valuable in the production of *comb* honey? But, of course, such combs should be thin and as perfect as natural combs.

SWEET CLOVER HONEY AT THE HOME OF THE HONEY-BEES.

A SUBSCRIBER reading what I wrote editorially in our last issue, on page 502, where I expressed the hope that sweet clover would take the place of white, which has apparently run out, has written a protest against GLEANINGS' saying so much in favor of what he calls a "noxious weed;" and he further intimates that, unless we quit talking about it, he will stop GLEANINGS. In that case I do not see but he will have to stop his journal, and, for that matter, *all* bee-publications. They all recognize that sweet clover is one of the best honey-plants in the world, and they insist, on good authority, that it is not a noxious weed—that it is easily killed out on cultivated lands, and seeks only railroad embankments, roadsides, and other waste places, where nothing else will grow. So far from being a noxious weed, it is now being cut and used as hay. While it is not equal to alfalfa, its near relative, as a forage-plant for stock, it comes the next thing to it. It is true, one experiment station has condemned it as a weed; but it is being recognized, and is now recognized by some of the best authorities in the world outside of beedom, as a forage-plant both for bees and for stock. It is true, our domestic animals have to learn to like it; but when they once acquire a taste for it they will nibble it in preference to any other plant; hence it can never be called a weed in pasture lands.

For the first time in our experience we are getting what I firmly believe is sweet-clover in sections and extracting-supers. Our bees are just fairly swarming on this plant along our railroad cuts and roadsides. They are bringing honey in slowly from *somewhere*, and we can not find that they are working on any thing but this clover. White clover has been a practical failure, as usual. Basswood promised well, and made a good spurt, but dropped off rather more suddenly than we thought it would. While the sweet clover is perhaps past its height, it will probably be in bloom in our locality for at least two or three weeks, and possibly a month yet.

I notice one thing—that, after every rain, the honey-flow is increased; and when it becomes a little dry the bees work the best only nights and mornings.

Sweet clover is surely spreading all over the country, and I think GLEANINGS and all bee-keepers may be pardoned for speaking a little in its favor, especially since it does not, except in a few isolated localities, occupy cultivated lands; and as it grows where nothing else will grow except ragweed, it adds just so much to the wealth of the country. I, for one, can not *help* shouting for sweet clover.

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OUR HOMES.

Except ye repent, ye shall all likewise perish.—LUKE 13:3.

If our readers will turn to page 866, GLEANINGS for Nov. 15, 1895, they will find there a sort of introduction to evangelist Rev. A. T. Reed. Well, a few days ago different members of the family were discussing as to the way they should pass the Fourth of July. When the question came to myself I said I had not fully decided. I had rather calculated on a wheel-ride somewhere, but had not decided just where it should be. It was that same day, or shortly after, that a letter was put into my hands, containing the following:

Dear Bro. Root:—We are to have an all-day meeting July 4th. Mr. Chafer, my old singer, and his wife, are to be here from Painesville, and neighboring ministers are to help. It is to be a basket picnic, with two hours' intermission for visiting the Ledge, etc. This is the third year in which we have held these Fourth-of-July meetings. I have found that it works well. A. T. REED.

Thompson, O., June 30.

I found, by looking at the map, that Thompson was toward the northeast corner of the State of Ohio, and not a great way from Painesville. I had long wished for an opportunity of visiting Storrs & Harrison's great establishment, with their 1000 acres of land and 29 greenhouses, as we read about in the advertisement which for some years has found a place in GLEANINGS.

The idea of holding a religious meeting on the Fourth of July was something novel; and an all-day meeting conducted by an evangelist was something I had never heard of before. I informed Bro. Reed that I would try to be on hand at that meeting on the Fourth. Early in the afternoon of the 3d I reached Painesville. An account of my visit there will be found in my Notes of Travel. Nobody knew exactly how far away Thompson was from the Storrs & Harrison farm. One man said he guessed it was about four miles. Another said he guessed it was nearer twice that. When I passed people on the road there seemed to be quite a general disagreement in regard to the matter, from which I inferred that Thompson must be an inland town of not very great importance. By the way, it is a little singular how little many people know about things or places within ten miles of the place where they were born and brought up. Perhaps the advent of the wheel will work a reform in this matter. Any way, it seems to me any real live person in this age and day of the world should know something about distances to surrounding towns in the neighborhood. I think it is about 13½ miles from Painesville to Thompson. The consequence was, as I did not make my calculations for so great a distance, it was getting dusk ween my wheel and I rustled over the beautiful roads, and paths paved with white gravel, of the little town of Thompson. As I had had no supper I quickly repaired to the only hotel in the place, and told the good woman presiding that I should like a beefsteak if it would not make too much trouble. She said it would take a little more time, and I thought I would hunt up Bro. Reed meanwhile. I gathered from the singing that the meeting had opened, even though it was early; and, looking in, I saw Bro. Reed presiding down in front of the pulpit. As soon as the hymn was finished he called the congregation, that were scattered almost all over the church, to please come forward and occupy the seats near the speaker. How many times I had seen him do this! and he always gets them to come—even the bashful boys and girls that slip in near the door. I sat down by the door this time so as to slip out unobserved and get my beefsteak. But I could not well slip out after such a call from my old pastor; neither could I very well sit still in response to his urgent request; so I found myself up very near the speaker. A wheelman who has made 13½ miles after his usual supper-time generally needs his nourishment; but the old familiar words of my dear friend of years ago proved stronger than nature's demands for supper. It was not very long a question as to whether it should be spiritual food or bodily refreshment. It seems to me as I write, that that brief sermon would do the readers more good than any thing I could write; but there is no room for it, even if I could give it in his words. When I was called upon to speak I told the friends that I had come thus far from home for the sake of worshiping with people who felt it the proper and right thing to continue the meetings right along through the Fourth of July.

It is not very long since I was looking back to my boyhood days, and thinking especially about the Fourths of July. What a thrill they used to give me! How I used to enjoy every hour, from the rising of the sun till its going down! I wondered if I should pass a Fourth of July like that again. Let me tell you that I have passed just such a one.

I was up early in the morning, and visited a celebrated spring before time for meeting. My account of this also will be found in my Notes of Travel. The day was rainy; but I got back from my visit to the spring just before the rain, and had time for my forenoon nap before the meeting opened. In my own home I a great many times awaken from my sleep with the music of the piano in my ears, accompanying the voices of my daughters. This time I was awakened also by the voices of singers. Before I quite came to consciousness I tried to comprehend how it was that such entrancing music should come to my ears on that morning of the Fourth of July. It was a band of singers from Painesville, led by a Mr. Chafer, referred to in Bro. Reed's letter. It was a new gospel hymn I had never heard. They sang while they drove several times around the square in the center of the little town, even though it did rain. The singers were pretty well protected by umbrellas and wraps, and carried out the program of the day grandly in spite of the wetness. I heard the same hymn several times during their stay, and its melody has been ringing in my ears every now and then during the past week.

There was a meeting in the forenoon, one in the afternoon, and one in the evening. I wondered how Bro. Reed got such good audiences in such an out-of-the-way country place, and on the Fourth of July too. Several people explained it by saying the young people were all anxious to "go somewhere," because it was the Fourth, and therefore they came to meeting. I suspect, however, that another explanation is that Bro. Reed has been for a whole week visiting their homes, not only through the town, but quite a piece out in the country. And this is one of the secrets of his always having good audiences, no matter where his field may be. This reminds me of a single sentence in his letter, that I will give right here:

My fields of labor in the summer are weak churches that can give but little financial support.

Personal work, you see, is what reaches people in temporal matters, and personal work is the thing that saves souls in spiritual matters. Bro. Reed often visits people at their homes,

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and becomes acquainted; then when they come to hear his gospel message in the evening he gets acquainted more, and in this way he has no lack of audiences, even through the busy time of harvesting and haying. His sermons, every one of them, are soul-stirring and to the point. I can not give them all here, but I am going to use a few of his illustrations. The one that impressed me, perhaps, most of all, was the one from the text given at the head of this talk.

I shall not attempt to give the discourse as Bro. Reed gave it; in fact, I am going to give you only some of my own ideas suggested by listening to that and other sermons on the Fourth of July and the Sunday following.

Jesus told us we shall all perish unless we repent. We can not stop now to consider the circumstances under which these words were spoken, but only the point included in the text. We all need penitence. This implies that we are all sinners. The speaker said he talked with people not only all through that town, but in other places where they had preached. Some would say, "I believe in the existence of a God; but I do not believe in such a God as you do. I do not believe that God would send us into the world, and then deliberately torment and curse us."

Mr. Reed replied, "My friend, let us take it on your own ground. You do believe in an overruling power and a Creator. Well, have you so far in life treated that Creator, the God in which you believe, with all the respect that is justly due him? Have you so far in life done this?"

He told the audience that he had never met more than one man who could boldly claim he had given even the God of his belief the respect and consideration that such a being should have from a creature of his. Then the proper thing for us all to do is to repent of our misdeeds and shortcomings toward the Creator we all acknowledge. We are guilty of sins of omission as well as sins of commission; and whoever has tried to live a pure and upright life before God has, sooner or later, become conscious of the impulses and feelings that are continually swaying us more or less from the straight and narrow path. We need penitence and forgiveness. A man's life may be in harmony with God, even though he be guilty of sinful thoughts and acts that are common to weak humanity. Mind you, I do not mean to excuse by this remark any one for being guilty of sinfulness. There are two ways of living. One way is in harmony with God and his laws. The other way is out of harmony with God. The first brings peace, happiness, joyousness, and life is a great and precious gift for which we can thank the Almighty day by day and hour by hour. The Psalmist has it correctly in his expression, "But his delight is in the law of the Lord, and in his law doth he meditate day and night." If a man is out of harmony with God and his holy laws, he is unhappy, dissatisfied with everybody and every thing, and his life finally comes to a rebellion. Unless he repents, and turns from his evil ways, he is a lost soul. "The man who deliberately and calmly takes God's name in vain is a *lost soul*." When the speaker uttered these words with his terrible vehemence and eloquent oratory, it almost made me tremble to think of it. Then he went on to say that, right in that beautiful town of Thompson (I think it was during some of their religious meetings right on the square), a man's voice was heard in cursing and blaspheming, so plainly as to be heard clear across the town. One who permits himself to indulge in such language is in defiance of God Almighty. As a rule he will go on and on. Satan never lets up when he gets a hold on a human being. The speaker then told of men whom he had met and talked with, who openly *defied* God, who challenged him to curse them with a thunderbolt, if there was a God who ruled over all, and who cared any thing about these things. In one of our cities there was an intemperate man who was in the habit of boasting, whenever he could get anybody to listen to him, that he was not afraid of God. He even dared and defied his Maker to show his power. Along with his terribly sinful life he had a habit of getting on the railroad track when he was intoxicated, and his friends had to watch him and get him away. One night, in one of his drunken orgies, he got on the track just before a swiftly passing locomotive. He was seen to shake his fist at the fiery monster, and to say, in a loud boasting voice, "Who is afraid of a locomotive? who is going to be scared by a red light? Come on, and crush me, if you dare. I am not a child, and I will give you to understand that I am not afraid of any thing or anybody." These were his last words. Before his friends could reach the spot he was crushed to death between the terrible wheels of iron and tracks of steel. While the blasphemer does not always meet his fate so quickly, it is none the less sure.

At the supper-table at the hotel, some one used an oath. It was used carelessly, and he perhaps did not know that he had linked the word in, as he spoke rapidly. Some of us remonstrated. He gave as an excuse—or somebody did, I do not exactly remember—that *doctors* always swear. This brought forth another remonstrance, and somebody present asked a young doctor who sat at my elbow if he ever swore. I think the question was asked innocently; but it seems that, innocent as it was, it was cutting pretty close to home. I did not know it at the time; but I have been told since that he was the person whose loud talk and blasphemy had been heard almost all over the town. The young man's face colored somewhat as he replied that he sometimes swore when he *felt like it*. My little prayer, "Lord, help," began to well up at once as I meditated on an answer that would not offend. I said something like this: "My dear friend, if I were in the habit of always doing every thing I *feel* like doing, I am afraid I should have landed ere this in the penitentiary." As soon as I had spoken I began to feel that perhaps my remark was not a very wise one after all. His lip curled with slight sarcasm, and a merry laugh went round the table as he looked at me and said quietly, "Very likely." I was almost an entire stranger in the community, and this brief reply was a little hard on me; but it all passed off as pleasantry, and of course I accepted it as such. There were these two doctors at the table—one an aged disciple of the allopathic school, and this younger one was a bright progressive disciple of homeopathy. The two had been bantering each other over the different methods of treatment frequently during my visit. They did not agree at all in regard to methods of treating disease. Notwithstanding, they *did* agree (it would seem) in regard to speaking lightly of the great Creator of all things.

I wonder how many there are who practice medicine who read GLEANINGS. Dear friends, is it true that *doctors* as a rule are in the habit of swearing? If it is true that some doctors and some surgeons of great skill are in the habit of deliberately taking God's name in vain, can it be true that the medical fraternity at large think it helps a man in his profession, or adds dignity to his character, to set such an example before others? God forbid! My friend,

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if such has been your habit, let me implore you to pause and consider. May it not be that this habit of swearing which you have gotten into is one of the causes of these despondent spells you are having? Suicides are on the increase, so we are told. People are dissatisfied and unhappy, even when they have the greatest cause to be thankful. Has not the talk we indulge in, especially when we are vexed, something to do with it? The man or boy who takes God's name in vain can not long be a man or boy who *enjoys* life; and I believe Bro. Reed's keen, cutting, earnest words are true—that "he who takes the name of his Maker in vain is a *lost soul*" unless he repents, in the language of our text.

Since my last I have done a deal of traveling. One afternoon toward night I took a notion that I must see T. B. Terry's Thoroughbred potatoes. I got over the first 15 miles of my trip very nicely; but when I neared the Cuyahoga River I found I had a "picnic" ahead of me, as the boys call it. There are some terrible hills as you approach the river, and more of the same kind to match as you go up on the opposite side. With commendable thrift the people had worked the roads and put the hills in very much better order than ever before. It was done just before our recent June freshets. The soft new earth that had been brought up on to the roadway had been washed and gullied by the severe and repeated heavy rains until wheeling was not only out of the question, but it would have puzzled a team with a lumber wagon to get along. Of course, I had to walk, and carry my wheel. When I reached the valley it was too muddy to ride, even then. The soil had been washed in from the hillsides, so the roads were wellnigh impassable. It was lucky that my wheel weighed less than 20 lbs., and that I had on my lightest summer clothing. I had planned to reach friend Terry's before dark; but it was dusk before I was out of the valley. I had mounted and dismounted so many times that I was nearly tired out; and an unlucky slip of the foot threw me into a ditch. After I had climbed the hill on the other side, pushing my wheel, one of my first experiences was to run over a thorn in the darkness, puncturing my front tire. It was too dark for repairs, so I finished my route by pumping up my tire about every mile. As I neared the beautiful home of friend Terry the moon had risen, which had brought out the closely shaven lawn around the barn and along the roadside, making me think the place never looked so handsome before.

My many adventures had thrown me back so that the family had gone to bed; but as I had noticed a light in Robert's cottage (before I reached the parental home) I thought I would go back there and make inquiries. I meditated going to the nearest hotel; but as that was several miles away, and it was after bedtime, I concluded the necessity of the case would have to be my excuse for intruding at an untimely hour. Before I reached the cottage, however, the light there also was extinguished, and I pushed farther back to a neighbor's where people seemed to be up and stirring. They informed me there had just been a wedding in that neighborhood. The Terry family were probably pretty well tired out by the event, and had gone to bed early.

The next morning there was a good deal of scolding because I had not waked the folks up, and they proposed that I be taught the combination of the lock on the kitchen door, so the next time I could walk in without any assistance from anybody, and make myself at home. Before I took my leave it was my pleasure to have a pleasant chat with the charming young bride (Robert's wife) in her own home at the cottage. Friend Terry's latest hobby seems to be home comforts. I wish our readers could see the new porch or porches he has been putting pretty nearly all around the home that I pictured to you in our little book, the A B C of Strawberry Culture, page 108. If we lived more outdoors we should be a healthier people. The colored folks down south never have consumption; and I think one great reason for it is, they live the greater part of the time entirely out of doors. Many of their houses have no windows, so their only means of lighting it up is by having the door swung wide open; therefore they never suffer from living in close rooms and their consequent impure air. Now, a great part of the year, even here in Northern Ohio, we can live outdoors if we take a little pains to fix up for it. H. T. Gifford, Vero, Fla., has large spacious porches, protected from insects by wire-cloth screens, and the family take their meals on this porch. Friend Terry spoke about taking their meals on the porch, and having his writing-table so he could sit and write right outdoors. People who can not stand a draft from open doors and windows have no trouble at all when they are right out in the open air. Do these things cost? Perhaps not as much as doctors' bills after all.

Friend Terry's other hobby, if that is the right name for it, is making a convenient kitchen so that his wife can do her own work without help. You see, the children are now all married, and in homes of their own. In the first place, he has a refrigerator close by both kitchen stove and pantry, that requires filling with ice only once a week. The manufacturers guaranteed it to keep every thing, when the ice-chest is filled that often, and a man brings the ice from town one day in each week. It does the business perfectly, and he has so far had ice to spare on every visit. I forget the expense every week, but it was only trifling.

The old Stewart stove that they have used for so many years is to be exchanged for a Stewart *range*. This interested me, because Mrs. Root still holds fast to the Stewart stove we used when we were first married. Water, both hot and cold, as well as fuel, are arranged right at hand as well as friend Terry's ingenuity could do it.

Close by is a very convenient and pretty bathroom, so planned that one may go from any of the bedrooms into the bathroom and back again without dressing up. I hope friend T. will give the world the result of his investigation and inquiries in regard to all real valuable late inventions for saving woman's work in her own home. In fact, he has partly described the things I have mentioned already, in that excellent home paper, the Philadelphia *Practical Farmer*.

Friend Terry's potatoes have hardly covered the ground as much as my own; but there are three reasons for it. First, he did not plant as early; second, my potatoes have not been flooded with rains to the extent his have, and others in his neighborhood. In many places his rich fertile soil has been washed from the hillsides into the ground, to the detriment of both hill and valley; third, a good many of *my* potatoes,

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as you know, were planted whole, the sprouts being carefully preserved and utilized.

Lack of space compels me to describe my trip to the Storrs & Harrison establishment in our next issue.

It is now July 7. During the past month I have gone over quite a large part of the northern and middle portion of the State of Ohio, on my wheel and on the cars. Now, I do not want to boast; but permit me to say there are no potatoes anywhere that begin to compare with our own five or ten acres. There are potatoes that are looking very well in many places, and in some of the gardens there are some that look a good deal like our own; but nowhere have I seen any thing to compare with ours in the way of potatoes by the *acre*. We have several acres now of early planting, where the vines cover the ground so completely that it would be impossible to think of cultivating. In fact, such has been the case with most of them for two weeks past. If you lift up the vines you will see the earth broken and heaved up; and if you put down your finger you will find great smooth clean potatoes everywhere. The yield is certainly going to be something enormous; and I might think it was something in the variety were it not that all good varieties are yielding a good deal alike. A friend suggested the other day that I must have some photographs, for it was too good a sight to be lost. Now, it would not take any very great stretch of the imagination, or *conscience* either, to get a nice photo, and say right under it that it was the result of using a certain brand of potato fertilizer. We did put on Mapes' potato manure at the rate of about 400 lbs. per acre; and the temptation is very strong to say that *this* fertilizer, at least, had something to do with it. But when you come to look at the "nothing" strip, so far as the eye can determine there is no difference whatever. In fact, at one point the "nothing" looks about the finest of any part of our ground. When I say "nothing" it must be remembered, however, this means there was no *chemical* fertilizer applied. The ground was all heavily manured with old well-rotted compost unless it was where we turned under rye and crimson clover.

We have formerly been troubled very much with scab, especially where potatoes followed potatoes; but this season we purchased a barrel of sulphur, which was drilled in with the phosphate. Where this sulphur was applied, so far as we have dug the potatoes they are wonderfully clean and nice. But we can not very well tell until digging-time just how much better the sulphured plots are than the other.

But I want to talk a little more in regard to farming in Northern Ohio. Why, it would almost make a good farmer weep to look over the potato-patches in a great part of our State. I was going to say it is *just* as much work to take care of a poor crop as it is to take care of a good one. Why, my friend, it is a good deal *more* work to grow a poor crop. Some of our potatoes covered the ground so quickly that we hardly had a chance to put the cultivator in them at all. The Breed weeder did almost the whole of it; and I begin to think now that perhaps the cheapest way in the world to raise a crop of potatoes would be to keep the Breed weeder running over them from the day they are planted until the vines cover the ground. Go through them, say every third day. You may be inclined to say at first that this would be a good deal of work; but just contrast it with waiting till the weeds are half an inch high, and then cultivating them with an old-fashioned cultivator, and going at it with a hoe, and hoeing out the weeds that the cultivator misses. Why, it is just awful. My impression is that, when you let the weeds get half an inch high, your potatoes have sustained an injury that they will never get over. Another thing, keeping the ground constantly stirred, making it a little finer every time you go over it, and, in fact, stirring it *every* day when it rains a little, seems to have a wonderful effect in making things grow. Somebody said recently, that growing crops need air as much as they do rain; and just as soon as we have a shower that is heavy enough to make a little crust on most soils it cuts off the air. In fact, the wet surface cuts off the air to some extent. Now, just as soon as it will do, stir up this wet or damp surface; break the crust, pulverize the lumps, and, if the shower is a light one, stir the wetness down into the ground before it evaporates. No wonder farming doesn't pay. I know prices are low; but it does not help matters for the farmer to become discouraged, and sit down and let the weeds grow. His expenses are just the same when he is idle and when his horses are idle as when he is at work. If prices are low, then cut down expenses. Stop buying expensive fertilizers that must be paid for in cash. Save the stable manure by the most approved methods; and what you lack in manure, make up by stirring the soil with the Breed weeder or some equivalent tool.

Yesterday I visited a branch of the experiment station, at Strongsville, O. It is in charge of Mr. Edward Mohn. This place was selected by Prof. Thorn because it seemed to be about the most unpromising piece of clay soil he could find in the State. When I inquired the way to the experiment farm at the store, the storekeeper said if young Mohn could succeed in raising good crops there he could grow them anywhere on the face of the earth. Well, the soil *is* poor — that is, the average farmer would call it poor; but Prof. Thorn, when he selected poor clay soil, selected a bright young farmer to manage it; and young Mohn has some very nice-looking crops of almost all kinds. How did he manage? Why, he underdrained the land, and then used stable manure. The stable manured plots were away ahead (almost every time) of those where heavy applications of commercial fertilizers were used. The latter show results, it is true; and with heavy applications the results are very satisfactory, but not equal to stable manure, and the expense is *ever* so much more. I asked friend Mohn if farmers around there availed themselves of the very valuable object-lessons that were to be found all over the hundred acres. He said that, while the larger part of them invested every year in fertilizers, scarcely one of them would take the trouble to look over the farm and see what the State is doing for their benefit. Some insist that it is cheaper to buy the fertilizer in bags than to haul out and spread their own barnyard manure. A great many find fault with the farm because he does not manage to raise bigger crops—as if the State hired him for no other purpose than to get large crops! A great many of his plots do not contain enough to pay for harvesting; but these very plots teach us the most valuable lessons. In one place they have a nice stand of soja beans. The direction was to drill them in as you do grain. Half of the plot is almost smothered with weeds, while the other half is almost perfectly clean,

and yet there has been no weeding or cultivating done on either of them. One half was put on a piece where all kinds of weeds went to seed last year. The other half is where clover sod was turned under. Now, this piece of soja beans gave me an object-lesson that was worth going miles to see. You can so manage your ground that many crops can be grown without any cultivating or weed-pulling.

A good many have found fault because the State pays the manager so large a salary compared with what the average farmers around him get on their farms. I do not know what the salary is; but I do know that young Mohn has a tremendous lot of work to do — especially brainwork. To keep his plots nicely labeled, and to record in proper books the treatment accorded to each one, it seems to me is more than one man can well do. He told me that, besides working hard all day in the fields, he had frequently worked at his books until 12 o'clock at night to carry out fully the instructions given him. What in the world is the reason that farmers should have a hostile spirit toward the experiment stations, weather bureaus, etc., when the State is doing so much to get farmers out of old ruts, and to induce them to work intelligently?

I omitted mentioning in the proper place, that, while at Wooster, Ohio, I looked through their very complete cellars for storing potatoes. The first apartment is a room inside of a cellar under the barn. If you want a place where you can keep a cellar from warming up in hot weather, it ought to be a tight inclosure inside of the cellar proper. We found potatoes in this room in such good condition in the latter part of June that it seemed to me it was almost all that could be desired; but after I went into the cold-storage cellar adjoining, and saw potatoes there that looked as if they had just been dug, when they had really been there for nine or ten months, I began to think the cold-storage room would be a splendid thing after all for one who grows and sells seed potatoes. The temperature had been kept between 30 and 40 degrees, if I remember correctly. Now, this cold-storage room was a very simple affair. You first make a tight room. It ought to be almost air-tight. Have the ceiling so high that there will be room for a large box or vat, to be supported overhead, to contain the ice. This ice-box is water-tight. One corner is a little lower than the others, and has a drip-pipe to carry off the water from the melted ice. This is all there is to it. Hot air rises to the ceiling of any room; but cold air falls to the floor; therefore the cooling-material must be placed near the ceiling. As long as there is ice in this box over your head, the temperature of the room remains but little above the melting-point of ice. Prof. Green told me there was no trouble in keeping apples, potatoes, or almost any thing else; but the great drawback is, when you take things out of this room, and expose them to a summer temperature, they decay much quicker than where kept in a cellar where no ice is used. I presume potatoes should be planted pretty soon after being taken from the cold-storage room.

A GLIMPSE OF THE VEGETABLE-WAGON BELONGING TO J. W. NICODEMUS, NEWCOMERSTOWN, OHIO. ALSO AN ACCOUNT OF HIS WORK, WRITTEN BY E. E. SMOCK, SUPERINTENDENT OF THE NEWCOMERSTOWN HIGH SCHOOLS.

The cut represents the delivery wagon for the vegetable farm of Nicodemus and family, Newcomerstown, O.

Four years ago Jown W. Nicodemus, plasterer and brick mason, deemed himself happy when he found his surplus earnings for a dozen years amounted to one hundred dollars; he is now the proud possessor of a magnificent river-bottom garden of nearly half a hundred acres, located within the corporation limits, and upon which debt has no incumbrances. From his earliest youth "Nicky," as he is familiarly called, had known naught but the closest privation and the severest toil; but he came through these years of discouraging apprenticeship light hearted, sober, industrious, honest. His first good fortune was in his marriage; his second, his children, of which he has two, both of whom appear in the picture.

Anna, aged twenty, stands at the rear of the wagon, in the act of handing to a customer a basket of lettuce. Too much can not be said in favor of this splendid little lady. She has beauty of form and manner; she is richly endowed intellectually; she cultivates a high taste for music; she apparently gives no thought to the lighter amusements of youth, but, with the unconsciousness of a child, she goes about her work; the embodiment of the kindly spirit of home, the encouraging genius of father, mother, and brother, and, above all, in a business sense, the confidential adviser of a large circle of friendly patrons on matters pertaining to garden products. Her father never tires of telling what "Annie has done for all of us."

Oscar, a promising youth of sixteen, is standing near the front end of the wagon, handing to another customer a bunch of radishes. Oscar is not yet through school, where he holds an honorable place; however, he is developing a deep interest in the heavier work about the farm, and manages the tasks assigned to him with a discretion far above his years. He will soon have charge of an additional delivery wagon, which the growing business of a growing town and a growing garden demands. His natural endowments are equal to those of his sister. Quick to learn, anxious to do, frank and honest, he controls the destinies of a bright and noble future.

Mrs. Nicodemus is the peer of her husband and children, a master in the management of her home, and her poultry is sought after by all who can appreciate the merits of a good table. She is entitled to a full share of credit in the remarkable prosperity of her family.

The personals of this account would be incomplete if no mention were made of Grandma Nicodemus, now in her eighty-eighth year. She is not an invalid. She possesses the true will power of Germany. Three years ago she paid no respect to the wishes of her son, but went out into the field, and in one day picked one hundred and four quarts of strawberries, while this year she has not been permitted to work in the field; yet she persists in doing full service in the kitchen.

The Nicodemus gardens are located on the north bank of the Tuscarawas River. The bottoms are elevated, sandy, slightly rolling, naturally fertile, and have been continually renewed with stable manure and by clover culture. They cover in all nearly sixty acres. This year there are nearly seventeen acres in berries and vegetables. On the north the garden is bounded by one of the principal streets of Newcomerstown. Here are greenhouses and hotbeds with extensive contrivances for steam heating. Near the boiler-room stands a 130-barrel water-tank which is kept filled by a 12-foot aermoter. This machine also grinds corn, chops feed, and cuts straw and fodder. East of the buildings are the vegetable-lots where are growing in almost tropical profusion peas, beats, beans, cabbages, cauliflowers, cucumbers, radishes, onions, rhubarb, celery, sweet potatoes, asparagus, and other garden plants. Even the daily deliveries do not seem to reduce the quantity. To the south, stretching away to the river, are fields of melons, potatoes, tomatoes, and corn. Interspered among these, and in places deemed the most favorable, are growing 1¼ acres of raspberries and 2½ acres of strawberries.

The proprietor was quite hopeful, when he set out the raspberries; but, through some cause unknown to him, they grew healthy in vine but without fruit; however, this year they have yielded him 108 bushels, which were placed on the market at $1.92 per bushel. This was the last year of their probation, and the scythe had been sharpened for their destruction. They will remain. The three chief varieties are the Gregg, the Hillbonn, and the Souhegan.

It may be that the backwardness of the raspberries is due to the fact that chief attention has been paid to the strawberry. Here it is that the money has been made. This year 250 bushels have been

DOUBLE-DECKED VEGETABLE AND FRUIT-WAGON BELONGING TO J. W. NICODEMUS, NEWCOMERSTOWN, O.

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sold from the wagon, netting $450. The largest day's sales were 37 bushels. The entire crop sold at an average of $1.80 per bushel, net Mr. Nicodemus has given special attention to the adaptability of different varieties to soil, having tried the Bubach, Parker Earle, Haverland, Sterling, Warfield, and, to a limited extent, the Marshall and Timbrell. While he has placed none of the latter on the market, yet the few baskets with which he has complimented his friends present none of the disadvantages of color so often attributed to them in this journal; however, he can speak more to the point next year, as he will have half an acre to test from. He gives the highest recommendation to the Bubach and to the Parker Earle, they growing larger, firmer, appearing better upon reaching the market, and giving a better satisfaction to his home patrons, where, by the way, he sells his produce.

Just as human nature has inherited a hatred of snakes, so has it inherited a love for a garden; and one never tires in wandering through this beautiful garden in this most beautiful valley The garden itself greets a visitor as though conscious of its mission in the fulfillment of promise, and the proprietor emphasizes that greeting by placing before the visitor the richest fruit of the garden with the bluff, hearty injunction to "eat and be filled."

Newcomerstown, Ohio. E. E. SMOCK.

The wagon shown in the cut was purchased, I think, of the Ohio Carriage Co., Columbus, O. As nearly as I can recollect, the expense was only about $75.00. Friend Nicodemus said they made it over a little, I believe, in order to suit his special purpose. An account of my visit to friend N. will be found on page 201, GLEANINGS for March 1, 1894.

WHITTAKER ONIONS—PLANTING THEM EARLY.

Our Whittaker onions are now ripe, and most of them gathered. I wrote to Dr. Martin, the introducer, asking him why they could not be planted now instead of waiting till September or October. Below is his reply:

You can plant your onions just now, and they will be safe, and really safer than anywhere else; but they will not start for a long time yet, and you will have the ground to cultivate to keep the weeds down; but if you wait till wheat-seeding time you can set them in freshly prepared soil that may now be in potatoes, and the crop not get ripe.

Mercersburg, Pa., July 3. DR. T. M. MARTIN.

Very likely friend Martin is correct. If the onions do not commence to grow until cool weather, we certainly do not wish to be to the trouble of keeping the ground free from weeds; and then his point of putting them in where potatoes have been dug is a good one. Ours have given us the finest crop of large solid firm onions we ever raised before on the same amount of ground. About a year ago Dr. M. advised us to plant the onions about the time farmers were sowing wheat. Probably this will be the best time.

WHAT TO PLANT IN THE MIDDLE OF JULY.

Almost every thing mentioned on page 511 in our last issue, calculating, of course, on two weeks later on things that are liable to be cut off by early frost. Those who are going to put in crimson clover should get it into the ground during the next 30 days if possible—that is, for northern localities. Last season it seemed to do better when sown with buckwheat, or cultivated in with early sweet corn; but with the ample rains we are having in our locality it would, without question, get a good start, even without any shade or protection. Some more experiments in this line are needed.

All kinds of forage-plants or green stuffs to turn under can be put in now. Everybody knows about sweet corn for fodder, but everybody does not know about Essex rape, cow peas, soja beans, Kafir corn, etc. If you don't do any thing more, you had better have a little patch in your garden to see how the new plants —especially the leguminous—behave in your locality. Of course, the bean family would be likely to be cut by frost before the *seeds* ripen. The Essex rape, however, will stand as much frost as almost any other plant known unless it be seven-top turnip. This, ordinarily, stands out green all winter long.

Celery-plants can be put out until the first of August. In fact, with good rich garden ground one may get nice celery, if he has good strong transplanted plants to put out, almost any time in the month of August. If you do not have abundant rains, of course you will have to supply the needful water.

It is a very good time now, if you have good strong plants, for setting out late cabbage. If you are working on high-pressure gardening, something should go into every piece of ground the very day it can conveniently be cleared of the former crop. With the rains we are now having here, I should call the middle of July the very best month in the year to set out strawberry-plants. I know a good many do not agree with me; but on our rich grounds we put out strawberries all the time during the summer months; and when it rains enough so as to get them started, we have always found the earlier the better—that is, after we can get good strong well-rooted new plants.

THE MARSHALL STRAWBERRY.

I am beginning to think a good deal of this variety, even if it does not bear such loads of berries as the Haverland, Parker Earle, and some others. At present writing, July 14, the bed across the street from where I write is still bearing nice handsome berries; and there have been more or less berries every week since the *last of March*. It was protected by glass during the latter part of winter, mind you, and therefore commenced fruiting in March. Now, I do not know whether this is a peculiarity of the Marshall, or whether it was the very rich ground and special treatment. As it is a perfect variety, we do not need to bother with any other kind to put with it.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

MAULE'S THOROUGHBRED POTATOES; 36 BARRELS FROM 1, HARVESTED AT GOLDSBORO, N. C.

Friend Root:—The barrel of Thoroughbred potatoes you had Mr. Maule send me, to grow under contract for you so as to plant product and grow a *second* crop, are all dug. They were all fully matured July 1st. I grew from the barrel planted in March, 36 barrels of very pretty potatoes. They are fully cured, solid, and firm, with many of them now showing sprouts at the seed ends. There will be no more trouble to get these potatoes to come up, if planted deep enough to prevent heat of sun penetrating to seed pieces, after they are planted, than it is to get last year's crop to sprout in spring. They should be planted three or four inches deep in mellow soil, as soon as they begin to sprout. Harrow or drag off ridges till potatoes are only about two inches under ground.

Cultivate rapidly after they come up, and it will be no trouble to grow a second crop in *northern* latitudes, planted any time prior to August 10, and in Middle and Southern States any time prior to September 1st. The great value in the second crop lies in getting large-sized tubers that will be immature at digging, so they will ripen after they are housed. If the second crop *matures* its tubers they are no better for seed in the following spring than first crop are. This is Prof. W. F. Massey's statement, and I agree with him.

As you can see, from the fact I grew 36 barrels from one of seed, the Thoroughbreds are wonderful yielders; and, by the way, it is the only high-priced potato Mr. Maule has introduced that were of any value here. I tested his Freemans and Irish Daisies.

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Neither was of special merit here; but the Thoroughbreds are A No. 1 indeed.

Bro. Root, the White Bliss Triumphs I offer for seed at $3.00 a barrel are specially cured, and hardened up, and are guaranteed to *sprout* when planted for second crop; while the market potatoes at $1.50 in Cleveland, while fully matured tubers, are not cured, and when cut and planted in hot summer for seed will rot before sprouting, therefore are worthless to planters. ABBOTT L. SWINSON.

Goldsboro, N. C.

Now, friends, I do not know much about this second-crop business, only I know it works all right in friend Swinson's locality; and the second crop of White Bliss has given us the earliest potatoes we ever raised in the world. We have ordered the crop of potatoes all shipped here to us; and if any of you want to try your hand at raising a second crop, as I am going to do, we will make you a special low price on these Thoroughbreds, as it is an experiment. They can be shipped from our place here or from friend Swinson's

SEED POTATOES FOR SECOND CROP.

We are now supplied with a good lot of Thoroughbreds, grown and prepared by A. L. Swinson—see page 546—to be planted for second crop. He says they will grow without any trouble in northern latitudes if planted prior to Aug. 10. I should, however, prefer to have them put in now as soon as possible. Prices: 1 lb., postpaid by mail, $1.00; 3 lbs., postpaid, $2.00; ½ peck, by freight or express, $1.00; peck, $1.75; ½ bushel, $3.00; bushel, $5.00; barrel of 11 pecks, $12.50, and GLEANINGS sent one year for every dollar sent us for Maule's Thoroughbreds. Or, if you choose, we will send a dollar's worth of potatoes at above rates to every one who sends a dollar for GLEANINGS. We can also furnish White Bliss Triumph potatoes to plant for second crop. 1 lb. by mail, 25 cts.; 3 lbs. by mail, 60 cts.; ½ peck by freight, 50 cts.; peck, 90 cts.; ½ bushel, $1.50; bushel, $2.50; barrel of 11 pecks, $6.00.

This matter of growing second-crop potatoes as far north as this is a rather new thing here; but I am told that Waldo F. Brown, in Southern Ohio, has for years grown excellent second crops of the Early Ohio and other early potatoes. These second-crop potatoes are worth very much more than others to winter over, because they are not matured until close on to cold weather. My impression is, that all early and extra-early seed potatoes should, for general planting, be *second crop*, or, at least, they should be potatoes from a crop planted not earlier than July. We know very well that old potatoes will give good results when planted in July, for Wilbur Fenn has been getting large crops of potatoes year after year in just this way. His Monroe Seedling potatoes, grown from a crop planted the 5th of July last are at this date, July 14, very nice table potatoes. At this writing we have just one bushel left. I hardly need add that our old potatoes are now practically all planted or otherwise disposed of.

WHITE MULTIPLIER AND WHITTAKER ONIONS.

These are now harvested, and we have a beautiful crop that we offer at reduced prices; viz., 10 cts. per quart; 70 cts. per peck; $2.50 per bushel. Compare these prices with those on potato onions and multipliers in your seed catalogs. Now please remember that, if you want to raise *big* onions next season, you want to purchase the smallest ones. If you want to raise *little* onions to plant again you will need to order the big onions. If you plant medium size, part of them will grow big, and part of them will split up into small ones. If you order them big, little, and medium, just as they come, you can sort them yourself. If convenient, you had better plant the little ones, medium size, and large ones, each by itself; then when you come to gather your crop you will be more likely to have the different sizes by themselves. These are beautiful hard onions, and are excellent keepers. In fact, they have given us less trouble to keep over winter than any other onion we ever handled, and there is very little sprouting. On our grounds they will winter perfectly outdoors. We have grown them on the creek bottom and on high ground For extra-early onions, and for bunch onions for the market, it seems to me they are the easiest to manage of any thing in the onion line.

We have also a beautiful lot of winter or Egyptian onion-sets. These can be planted at any time, will grow anywhere, and stand any winter. In fact, they will keep growing right in the same spot year after year, without any care of cultivation. Rich ground and heavy manuring will, of course, make them finer and larger. We can furnish these, either large or small sized sets, 5 cts. per quart; peck, 35 cts.; bushel, $1.00. If onions or onion-sets are wanted by mail, add 10 cts. per quart for postage.

THE NUT CULTURIST.

The above is the title of a bright new book by Andrew S. Fuller, published by the Orange Judd Co., New York. Price, by mail, $1.50. The book contains 290 pages, and is illustrated by over 100 cuts. It is said that great quantities of nuts are annually imported from foreign countries, and nuts that might be grown right here in our own country. I presume it would pay any one who is interested in this new industry of nut-growing to obtain the book. It may be ordered from our office at the above price. Any one who has read Fuller's Grape Culturist need not be told that friend Fuller has a wonderful talent for making things plain. He also gives us the honest truth in regard to the whole matter of nut culture; and his descriptions of the new nuts make a pretty vivid contrast to some of the statements in the catalogs.

CONVENTION NOTICES.

Mr. Editor:—The fixing of the time for the meeting of the N. A. B. K. A. at Lincoln, Neb., has been left by the Executive Committee with the Nebraska bee-keepers, so that they may be able to arrange for reduced railroad rates; and in a letter just received from Mr. L. D. Stillson, of York, Neb., secretary of the Nebraska State Bee-keepers' Association, who has the matter in charge, he says: "I have been to Omaha to see the railroad people, who promised to let me know July 1st; but no satisfaction yet as to rates or dates. I will write you at the earliest moment when I know the dates. They gave me dates for our Horticultural meeting more than ninety days before the meeting."

I was hoping to get the program in all the July bee-journals, but have waited so as to get the time set. So far as arranged for, the following can be announced:

The Past and Future of Bee-keeping. Mrs. J. N. Heater, Columbus, Neb.

Bee-keepers' Exchange. Prof. A. J. Cook, Claremont, Cal.

The Wild Bees of Nebraska. Prof. Lawrence Bruner, Lincoln, Neb.

Improvements in Bee Culture. E. R. Root, Medina, Ohio

Some of the Conditions of Nebraska. L. D. Stilson, York, Neb.

The Union and Amalgamation. Thomas G. Newman, San Diego, Cal.

Economic Value of Bees and their Products. C. P. Dadant, Hamilton, Ill.

Artificial Heat and Pure Air, properly applied in Wintering. R. F. Holtermann, Brantford, Ont.

The Honey-producer and Supply-dealer. Rev. E. T. Abbott, St. Joseph, Mo.

An Original Poem. Hon. Eugene Secor, Forest City, Iowa.

Importance of Watering in the Apiary. Hon. E. Whitcomb, Friend, Neb.

Honey Adulteration and Commission Men. Geo. W. York, Chicago, Ill.

Sweet Clover as a Honey-producing Plant. Wm. Stolly, Grand Island, Neb.

The President, Mr. A. I. Root, will give us an address, and it is expected that Somnambulist will be present with one of her inimitable papers; but as she seems to be asleep at present I have not been able to learn the subject of it.

It is the present intention to devote most of the second evening's session to an address of welcome by the Hon. Geo. E. McLean, Chancellor of the Nebraska State Univerity, with a response by Hon. Eugene Secor, of Iowa. The Hon. Alvin Saunders, an old-time bee-keeper, and a war governor of Nebraska, will also address the convention; and if time will permit, other addresses will be made or papers read. A. B. MASON, *Sec.*

KIND WORDS FROM OUR CUSTOMERS.

The extractor is a good one, and the comb foundation is just splendid—no fishbone. GLEANINGS is better and better all the while. I know it is the cheapest reading, except the Bible. W. R. BAKER.
Saint Joseph, La., June 14.

I received my goods last Thursday. They were all in good condition. I am well pleased with them. The Crane smoker is a "dandy." It is the best I have ever tried. I will recommend it to all bee-keepers. W. G. KARNS.
Kittanning, Pa., Apr. 27.

FROM THE IDAHO EXPERIMENT STATION.

The hives and all came in good order. How you can furnish so much for the money is a wonder to me. The queen is a beauty. I had no trouble in introducing her. J. M. ALDRICH.
Moscow, Idaho, May 25.

THAT NEW-PROCESS FOUNDATION.

The goods came safely to hand, but were a long time on the road. Opened *entirely* satisfactory, and I must say I am well pleased with your method of business. I think the foundatian made by your improved method is much superior to all others.
Alphin, Va., May 5. P. I. HUFFMAN.

Our family have decided that the septum in the honey-comb drawn out from the new process foundation is tougher than in that made in the old way. Are we right about this? JAMES L. HOYAL.
Spring City, Tenn.

[You are correct in regard to the new-process foundation. While it is tougher it seems to be more readily worked by the bees.]

The stencils are received, and my hives are now all numbered, so now perhaps I shall get my own sacks back when people borrow mine. It saves the trouble of telling them that they were not returned. No. 0 gristmill is at hand, and it is just thing to make graham flour with. And that is not all. These things were only a little over half what they would have cost me here; and I am informed there is still 60 cts. to my credit. JAS. PRATT.
Cumminsville, Neb.

FROM A VERY YOUNG FRIEND.

My little girl, three years old on the 22d, has just climbed on my knee, and says, "Give my love to the man who makes the bee-hives." Our little boy was born the same day your little grand-daughter was—Sept. 29. I reckon you think that fellow Turner must be a mighty big fool to be writing such stuff to you, but you see I know you and all your family, and want you to know mine. But I fear I may tire you. If I have already, don't read another word, but throw this letter behind the fire and thereby rid your dear good old self from any bother it gives you. I never read a word about bees and bee-keeping in my life till last summer, when you sent me a sample copy of GLEANINGS with the hives I ordered from you (which, by the way, came to hand O. K. and gave perfect satisfaction). Last June a little swarm of bees came to our house. I nailed up a box and put them in it, but they left that evening and went to the woods. But I followed and saw them go into a tree; and, without veil or smoke, I cut that tree down and split it open and drove those bees back into my box. I had never seen it done or read how it should be done; but I did it; and those bees are alive, and were flying out lively to-day. I put them in your Dovetailed hive; also three other swarms that I bought last August. I have a kind neighbor who lends me GLEANINGS since then, and I learned from them how to transfer.

I wish you had not said it is no use to apply for work at the Home of the Honey-bees, for then I might have been, like Mr. Calvert, an *exception* to the rule. L. A. TURNER.
Levy, Va., Feb. 26.

OUR STRAWBERRY-BOOK AND TERRY'S TEACHINGS APPLY TO THE CLIMATE OF CALIFORNIA.

The strawberries have done gloriously. I have sold from my one-fourth acre so far 2088 one-pound baskets (full weight), which netted me exactly $185.00, and there will be one or two small pickings yet. I estimate 60 to 75 baskets more. This does not include the berries we used at the table and those given away. It may satisfy you to hear that I followed Terry's teachings almost to the letter.
Merced, Cal., May 20 A. J. HESSE.

[This furnishes an important fact. I have often been asked whether Terry's plan of growing strawberries was applicable to California and other climates as well as to our own; and I have always felt a little anxious to know how it was in real practice. Well, if his teachings apply in California I think they will amost anywhere else. Where it is difficult to get heavy crops of clover I would advise turning under any other leguminous plant.]

NORTHERN-GROWN POTATOES FOR TABLE USE AND SEED, ETC.

Friend Root:—Some time ago you threatened to let up on your potato talk. I see, however, you have not done it to any great extent, and don't you do it either, as about eight out of ten bee-keepers are more or less interested in potatoes. By the way, did you ever use any northern-grown seed? and if so, did you observe the difference in yield and quality? Our best growers here use seed northern grown. For table use they are far superior to those grown here, and much superior to the famous Coloradoes. I have 35 acres planted to Early Ohios from seed grown in Northwest Minnesota. The freight on the carload was $110. If you ever use northern-grown seed, order them yourself from the grower, as all potatoes that are called "northern-grown" are not unless you are sure of your man.

The one pound of Maule's Thoroughbred that my friend Lipp got of you, he reports as being in looks far ahead of any of his other potatoes, and he has several acres; but they are so precious he would not dig into them, as he did not wish to injure one single potato. The one pound made 26 hills, and every piece grew. M. F. TATMAN.
Rossville, Kas., June 17.

[The New Queen potatoes grown by T. B. Terry last season are from seed he purchased in Maine. I believe he reports better success, as a rule, from northern-grown seed. The potatoes we get from Manum could be called "Northern-grown," I suppose. Now, is there not some one among our bee-keepers in the State of Maine or adjoining States who is also a grower of potatoes for seed or potatoes for table use? and will he please stand up and tell us how many he will be likely to have, and something about the price he expects for them.]

THE TRAMP QUESTION.

Mr. Root:—I have been very much interested in your articles on the question of tramps. I fully agree with your idea that it is wrong, and encouraging idleness, for Christian people to feed them. I have been overseer of the poor for 18 years for this city, which has a population of 10,000. Our law provides that the overseer of the poor may feed able-bodied transient persons, and require them to pay for it in labor on the streets under the street commissioner, at not exceeding five cents per hour; and as we can get them a meal at a restaurant for 15 cents they can earn a meal in three hours; so I give orders for them to labor. But very few ever come back to get the meal.

In our young days we were taught to feed the hungry and clothe the naked, and thereby store up treasures in heaven, and it is hard for some to turn away even a tramp who says he is hungry; consequently it is easier for a tramp to beg a meal than to earn it by the sweat of his brow. I offer all who come an opportunity to earn a meal; but in five months I think only three have made the attempt to work for it. We lodge, in a building under the control of our city police, from 500 to 800 each winter, and I presume most of them get one or more meals of victuals out of our charitable people.
Marshalltown, Ia., June 17. O. B. BARROWS.

THE BEE-KEEPERS' ARMENIAN FUND.

Contributions up to date are as follows:

Amount previously acknowledged	$81 97
E. R Root	10 00
McClure Bros., Las Cruces, New Mexico	5 00
Mrs. David Wagner, Calamus, Iowa	5 00
Jas. Pratt, Cumminsville, Neb.	60
	$102 57

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Have never seen such industrious, energetic bees.—DR. LUNG.

The best honey-gatherers I have.—C. C. THOMAS, Murrietta, Cal.

I never saw such workers; have queens from 20 breeders.—SAM KING, Massey, N. C.

Warranted queens, 80c each; 3 for $2.00. Select warranted, $1.00 each. Tested, $1.00; select tested, $1.25. Safe arrival and satisfaction guaranteed. Send for circular.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 841 queens.

J. P. MOORE, Morgan, Pendleton Co., Ky.

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GEO. J. NISSLY, SALINE, MICH.

Please mention this paper.

Read what J. I. PARENT, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby Street, Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to THE A. I. ROOT CO., Medina, O.

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Queens

By Return Mail.

Special Prices For Next Thirty Days.

If you can use any don't fail to write me naming kind and number and I will surprise you on prices.

Send for 40-page illustrated catalog of full line of bee-keepers' supplies.

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Weed Foundation.

Nothing like it.

Our total output so far this season is near-50,000 lbs., which is 10,000 lbs. more than the best year of the old-process foundation.

●●●●

We are receiving very flattering testimonials from the leading bee-keepers all over this country, and, in fact, of the world. Here is one that has just been received from the inventor of the Cowan extractor, editor of the *British Bee Journal*, and author of the British Bee-keeper's Guide-book—a work that has had an enormous sale, and which has been translated into French, German, Danish, Swedish, Russian, and Spanish. Mr. Cowan, under date of June 18, gives the new foundation this high encomium:

I have had an opportunity of trying the Weed foundation. I like it very much, and certainly think it is all that is represented.

Yours very truly,
THOS. WM. COWAN.

London, Eng., June 18.

And that is not all. We have sent several very large consignments of this new-process foundation to England. The British bee-keepers are demanding this article all over the British Isles, just the same as American bee-keepers are demanding the same all over the United States. Our British cousins know a good thing when they see it.

We have many other fine testimonials, but we have not room to display them here.

The A. I. Root Company,

Medina, Ohio.

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TIN CANS.

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NEW HONEY FOR SALE.

We already have choice new comb honey to offer at 16c per lb.; 100-lb. lots at 15c; extracted in 60-lb. cans at 8c; 2 cans in case at 7½; two-case lots at 7c. Old extracted honey, just as good as the new, but candied, at ½c per lb. less.

BEESWAX STILL LOWER.

The tendency of the beeswax market is still downward, and offerings are plentiful. Until further notice our price will be 22c cash, 25c trade, for average wax delivered here. Selling price in round lots will be 28c for average, 30 for select refined wax.

BUSINESS AT THIS TIME.

The demand for sections and shipping-cases still continues brisk. We have shipped half a carload of frames and sections to England, and another half-car of goods to Australia. We are now getting a little stock ahead of orders, so as to be able to ship any thing without a day's delay, as far as possible.

HONEY-TUMBLERS.

The factory which makes our honey-tumblers has made a reduction in the price, so that we are now able to offer the 10-oz. tumbler, No. 788, at $5.00 per bbl. of 250, and the 1-lb. size, No. 789, at $5.00 per bbl. of 200. The two, nested together, 200 of each in a barrel, for $8 75. No change in price of other glass honey-packages listed in our catalog.

THE HONEY-MARKET.

A comparison of the quotation on honey in the different markets from which we publish quotations in this issue, with those of the same markets a year ago, shows very nearly the same prices. In not more than two or three cases are they higher now than at the same time last year, while in quite a few the price is some lower, with the general average a little below last year's quotations. A little later in the season prices improved a little last year, while by November or December there was a downward tendency, which continued till spring. Aside from the far West, from which we have but meager reports, there is undoubtedly a better crop of honey generally this year than for several years past. In view of this, and the low price of commodities generally, we shall not be surprised to see prices of honey lower than we have ever known them to be before by the time the present crop is marketed. Do not be in haste to crowd your honey into market, and prematurely crowd prices down. Strictly fancy white comb honey will always command a good price and a ready sale. In preparing your honey for market, bear in mind that it always pays to take great pains in grading, selecting, and packing. See that the sections are scraped clean and bright, and packed carefully into bright and clean cases, the fancy white all by themselves, and other grades by themselves. Even if you have only a few cases, grade it; and each grade should be so uniform that the sections placed next the glass will fairly represent the entire contents of the case. If every beekeeper would take the necessary pains in preparing his honey properly for market before he ships it, there would be less disappointment in the returns, and less complaint of commission men. The use of cartons on comb honey is becoming more general. It is desirable, also, to use a light case, bright and clean, and as nearly uniform in weight as possible. The sale of many a lot of fancy honey is often greatly injured if not ruined by the makeshift cases improvised at home, to save a few cents in first cost. The amount lost on the sale of such lots would have more than paid for bright new cases of proper construction to pack the honey in. I could cite as proof of this a number of cases that have been brought to our attention by dealers in honey in no way interested in the sale of shipping-cases.

Cut Prices. Dull Times. As the "rush" is over, and I have lots of queens, I will send queens warranted purely mated, from either 3 or 5 banded strains, for 60 cts. each; six or more, 50 cts.; dozen, $5.50. Tested, 80 cts.; safe arrival guaranteed.
J. B. CASE, Port Orange, Vol. Co., Fla.

I will sell Five L. frames, heavy with bees and brood, with hybrid queen, in light shipping box, for $3.00.
E. D. BARTON, East Hampton, Conn.

WANTED.—In view, a purchaser for my crop of Maule's Early Thoroughbred potatoes. Planted in June on virgin soil. Superb seed. Will sell in bulk reasonable.
W. J. MANLEY, Sanilac Center, Mich.

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On having good queens, and getting them promptly when you order them. Now is the time to requeen your colonies, and queens are cheap.
We can send you No. 1 queens of this season's rearing whose workers can not be surpassed as honey-gatherers; and as we have a large number on hand, we can fill your orders by return mail.
Queens warranted purely mated, 50 cts.; $5.50 per doz. Young tested queens, 75c; $8.00 per doz.
J. W. K. SHAW & CO., Loreauville, La.

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Hardy Prolific Queens.
Gray Carniolans or Golden Italians, bred in separate apiaries. One untested queen, 65c; six for $3.50. Tested, $1.25. Select tested, $2.25. Best imported, $4.00. Never saw foul brood or bee paralysis. *Satisfaction guaranteed.* Descriptive price list free.
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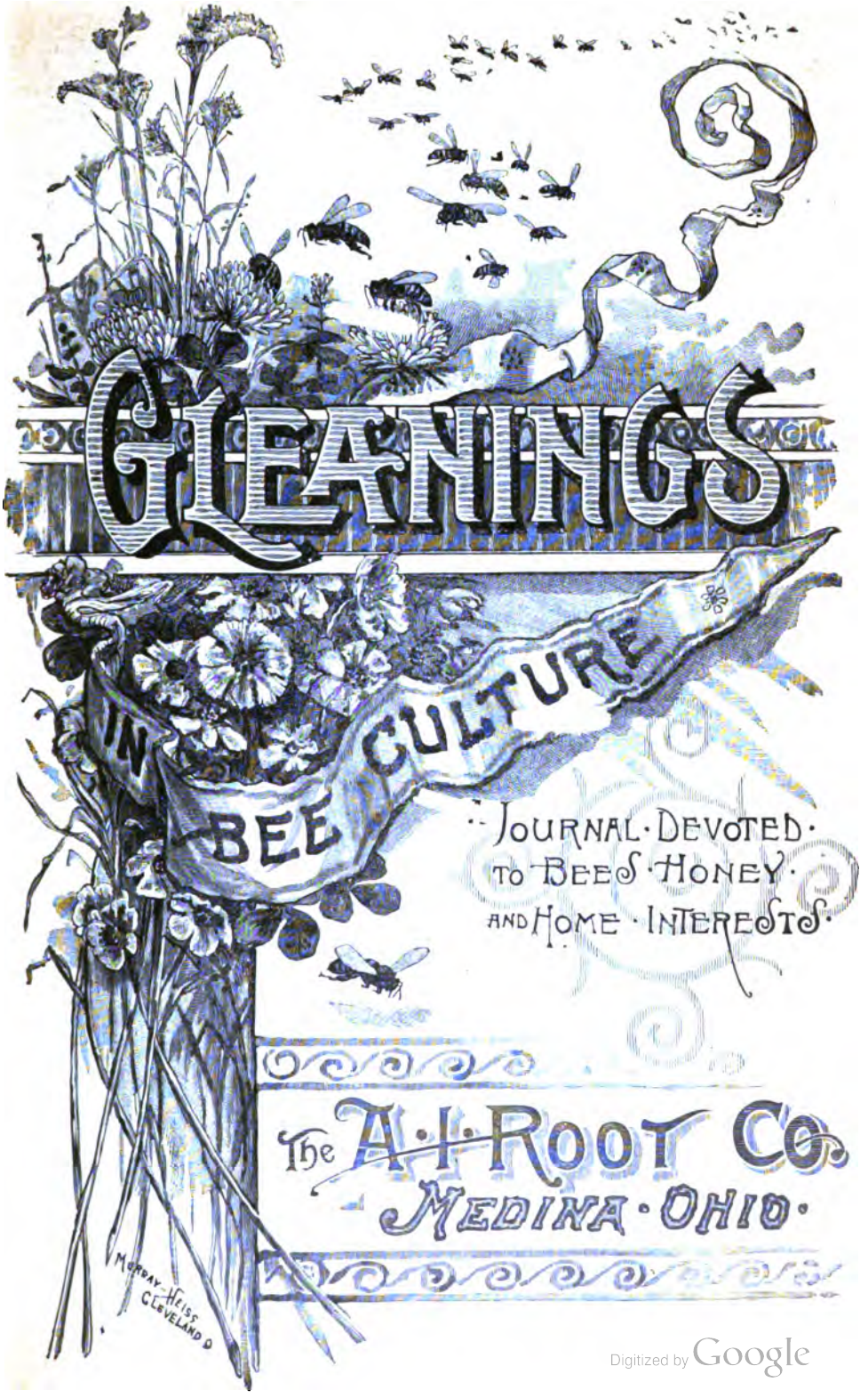
CHAS. H. THIES, Steeleville, Ill.

VOL. XXIV. AUGUST 1, 1896. NO. 15.



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Published Semi monthly by

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E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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Country Gentleman, weekly	(2.50)	3.00
Ladies' Home Journal, monthly	(1.00)	1.75
Sunday-School Times, weekly	(1.50)	1.75
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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

Vol. XXIV. AUG. 1, 1896. No. 15.

STRAY STRAWS
FROM DR. C. C. MILLER.

JULY 15, 4439 finished sections in the house, and more to follow. [That sounds like business.—ED.]

BEE-KEEPERS will be public benefactors if they succeed in getting farmers to learn that sweet clover is a good forage-plant.

BEE PARALYSIS has never been a very serious matter in my apiary; but there has been more or less of it for years until this year, and I'm not sure that I've seen a case this year.

IF YOU WANT an omelette to be light and nice, treat it somewhat as a griddle-cake. Use only two eggs at a time, and bring it on the table to be eaten hot before another is made.

THE BEES are making trouble in this family. For the past two years my wife has held undisturbed possession of the honey-room as an annex to her kitchen, but the crop of honey this year has routed her.

TRY TO DO without medicine if you can; but if you *must* use some one of the headache preparations, try Dr. House's yellowzones. They're as good as any, and they're made by a straight man from our own ranks.

NO, SIR, friend A. I., doctors don't swear, as a rule. I've known lots of them, and I've seldom known one to swear. As a class, doctors are intelligent; and a man who swears shows that he is just so far lacking in intelligence.

WHAT A SHORT TIME of feeding makes the difference between a worker and a queen! If it is true that the same food is given during the first three days, there remain only two or three days' feeding to change the worker to a queen.

JUST AS I EXPECTED. While the wise ones were trying to explain *why* we were never to have any more good honey years, one of them was quietly getting ready to come; and the year 1896 will be remembered by many as one of the best honey years of their lives.

A PILE OF HONEY 15 supers high tumbled down for me July 15. How many of the 360 sections do you suppose were spoiled? Just five! But the thermometer stood at 95° in the shade. If it had stood at 45°, as it did two days later, nearly all would probably have been ruined.

DON'T USE ROSIN to fasten foundation in brood-frames. Some day you may want to melt up the old combs, and then the rosin will spoil the wax. Don't use it to fasten starters in sections unless you want your customers to wonder why some honey has a bitter taste.

"HOW USE doeth breed a habit in a man!" says Shakespear. I've tried clipping a queen's wing with a knife a few times, but made bungling work of it. With the scissors it's no trick at all. With Doolittle I suppose it's the other way. [Your knife was dull or sticky. Eh?—ED.]

IF WEED FOUNDATION is tougher than other, won't it be tougher to "chaw" in a section? Or is it "more readily worked by the teeth" as well as by the bees? [Your last suggestion is correct. It is much less liable to stretch in drawing out than the old process, and the bees take to it quicker.—ED.]

THE ARGUMENT in favor of clipping queens with a knife, that one always has a knife with him," doesn't count with me. I'm more sure to have scissors than knife in the apiary, for I never go without my book, and the scissors are tied to the book. [You're the only man or boy I know of that doesn't carry a knife.—ED.]

PUT A SUPER without a bait on a hive, and the bees won't touch it till they're crowded to do so—probably several days. But if they've been in the habit of going up, it's quite another thing. Take off a full super and put in its place an empty one, and they'll commence work on the foundation right straight.

A QUEEN of the current year's raising has the reputation of being much less inclined to swarm than one older. But I find little difference between a queen raised last year and one raised this year in May. I find a great difference, however, between a queen raised this year in

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May and one raised in June. The June queen is a great help toward non-swarming.

I'LL SHOUT with you, Mr. Editor, for sweet clover, only I want the whole truth to be known about it; and I doubt whether its honey can ever compete with white-clover honey. [But when you are trying to give the whole truth, don't give the impression the sweet-clover honey is bad. While it is not quite equal to white-clover, it is very good.—ED.]

YOU'RE RIGHT, Mr. Editor, in placing much value on drawn combs in sections. But after you've made a good *start* with a super of drawn combs, I suspect there is not so much difference between combs and foundation. Raise a super half filled, and put under it a super of foundation, and I think the bees will commence on the foundation *nearly* as promptly as they would on drawn combs. [May be you are right, but I can't quite believe it.—ED.]

I'VE KNOWN queenless bees to make good work storing honey in combs already built; but I think I never knew them to make good work at comb-building without a queen. You know you can often tell that bees have raised a young queen by the amount of white wax on the black comb. [Some comb-honey producers dequeen to prevent swarming, and yet they get lots of comb honey. Either you are partly wrong or they don't get the honey.—ED.]

LEADING BEE-KEEPERS are, on the whole, rather conservative. Of the 21 who reply in *American Bee Journal*, only five seem to use a hot plate in fastening foundation in sections. Melted wax, the Parker fastener, a screw-driver, and rosin and wax, are used. If they'd once try it, they'd find the Daisy fastener a daisy. [Most men think their ways are better; and, right or wrong, they are not going to give the other man's method even a trial. We've learned by experience that it is best to try every thing of this kind, and we have only to find the Daisy ahead.—ED.]

ISN'T IT TRUE that a "bait" in a super is one factor toward preventing burr and brace combs? If there's no bait, bees will crowd the brood-nest and build all around it before starting on the raw foundation in the super, whereas they'll start in a bait without waiting to be crowded into it. [We have some supers with only the bait sections filled out. When we give more baits they fill them out, but do little or nothing with the foundation. In other supers a bait is sufficient for a general start; but if *all* supers had drawn combs instead of foundation, we'd get more honey.—ED.]

THIS YEAR keeps up its record as a fast one. I took off my first finished super of sections June 20, two or three weeks earlier than ever before. July 15 I took the fifth super from one hive. [Whewatton, Doctor! Excuse slang; but as I can't throw my hat up high enough for you so that every one can see it, I had to use something else than common English. I have several times advised you to "pull up stakes" in view of your repeated yearly failures of the honey crops; but if you had followed my advice it would have been just your luck to drop into some locality where there was no honey, not even this year. Notwithstanding my foolish advice to you, I have repeatedly advised bee-keepers to stay where they are, and the wisdom in such advice has been demonstrated again and again by a final onslaught of honey, such as you have just been having. There is no reason why you should not have a lot more such good seasons. The spell is broken; the seasons of drouths are being replaced by copious rains, so necessary to the growth of white clover. As I write, it's pouring hard, and we have been getting from one to two good rains a week.—ED.]

I take the following clipping from the *American Bee Journal:*

Mrs. M. Louise Thomas, of Philadelphia, at the last meeting of the American Farmers' Institute Club, delivered an address on bee-keeping, in which she is reported to have said she knew of "two women who have incomes of $5000 each, annually, selling queens." Of course, we don't like to doubt Louise's word; but in plain language we can only say we don't believe it. At least, we won't until we have some proof for it.

But this is not all. The editor goes on and gives Mrs. Thomas a large amount of garden sass for nothing. "Some proof for it," forsooth! What do you want *more* proof for? Hasn't Mrs. Thomas stated in plain words that she "*knew* of two women who have an income of $5000 each annually, selling queens?" What more do you want? Well, *I* can satisfy Bro. York, and prove the truth of what Mrs. T. says. I will illustrate, and take myself for example. If I stand sidewise to the moon, and look at it at a certain angle—with my right eye—I can see 16 moons. If I get away from a lamp fifty yards or more, and look at it in the same manner, I can see 16 lamps. If I set up a silver dollar so the light will shine on it, I can see, in the same manner, 16 dollars—16 to 1. I have often attempted to secure the extra $15 by bounding forward to gather them in. But they always elude my grasp—fade away before I get there. I always *was* unlucky, anyway.

But I never *could* convince my left eye, under the same conditions and the same angle, to see more than one moon, one lamp, and one dollar; so no false hopes or delusive dreams are ever nurtured in my gentle bosom—by my left eye.

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Now, the point I want to make is, that Mrs. Thomas is 16 to 1, clear through, or, rather, in both eyes; so you see these two lady speculators in queens, from her standpoint, would not have to sell more than 200 untested, tested, and select tested queens, at 16 to 1, to make their $5000 each per year. Now, Mr. Editor York, I think you owe Mrs. Thomas an ample apology. Tell her your remarks were strictly in a Pickwickian sense, and that your "mind was rather dwelling on the years when there was honey in the mountains," etc.

Here is a "Straw" that I don't under—no—oh, no!—that I desire Dr. Miller to explain for the good of others—if he can:

Sections made green by too much sulphur, C. Davenport remedies by soaking in water. If that loosens the sections from the wood, he gives them back to be fastened by the bees, choosing a colony that has its brood-nest full of honey.—*A. B. J*

What is loosening the sections from the wood, anyhow? What wood? I thought sections were *all* wood. Now, doctor, don't say this is a selection, and that you don't indorse every thing you select. If a thing is not fair and square and clear, it is your business to take hammer and chisel, and doctor it up. What else are you there for, anyhow?

THE HOME MARKET.

The editor of the *American Bee Journal*, p. 376, says· "If at all possible, dispose of all dark grades of honey in the home market." That is most excellent advice, my son, and given by the "Old Reliable," that can not err. If you have any dark stuff, or any bug-juice—the blacker the better—crowd it on to the home market. It will increase your trade and make you popular. People will smack their lips, and cry out, "Oh that I could see that honey-dealer again!" The children will stand in groups at the street corners, looking anxiously up and down to catch a glimpse of you; and when at last the twilight dews drive them weeping to their homes, nothing but a stick of candy will coax them into their little beds. People will yearn for you to come around again. In fact, it will create a passionate love for you—a longing for your society, which you will hardly understand until some fellow gets you firmly by the neck. Then you will see—no, you won't, either, for your eyes will be so bunged up that you won't be able to see any thing at all.

THE CALIFORNIA OUTPUT.

From all parts of California there comes but one monotonous and wailing cry—no honey! We have hung our harps upon the willows, and sat down mournfully in the dust. The whip-poorwill goes flashing by, unmindful of our pathetic cry. As the evening shadows gather around us the owl hoots at and mocks our misery. Not a word of sympathy have we heard from the mean and miserable East—not a word of pity or compassion has reached the Pacific shore. Yes, and postage only two cents at that! But, never mind! next year we will "laugh at your calamity and mock when your fear cometh." We will parade your streets with drums beating and banners flying, to celebrate our victory. There, now!

NEW RACES OR SPECIES OF BEES.

THE DIFFICULTIES TO BE OVERCOME.

By W. K. Morrison.

Mr. Root:—In regard to my expedition in search of new bees, I wish to say that it would not be diplomatic to make much of a fuss about this affair. Few of your people have any idea of the obstacles in the way of getting these bees. Even as to myself, I sometimes think whether or not it would be better to try the bees of South America first, as I know more about that region. Most people think it is the lack of money that prevents our going ahead. But money is not the only necessary thing. Influence is also a great factor. Some of the tributary states are closed to white men altogether; and unless the Indian officials saw fit, a person could not enter these states. In many cases a convoy of soldiers is necessary. Again, one has to travel on steamers owned by the government, or not at all. Money has not the power that it has with us. Unless the government so orders it, the native won't help you one bit, as he has little use for money. I believe in making a clean job of it, and seeing and examining all the different bees kept by the natives. The bees of Bhotan seem to me to be the best. I expect to get the powerful aid of several scientific botanists and government officials. This is absolutely necessary. It is also necessary to get the aid of steamship companies. With the aid of these men we could get along very well. There are plenty of scientific men in these eastern countries who would know just how to assist such an enterprise.

Dr. Alfred Russel Wallace, the friend and co-worker of Darwin, is still alive, and takes great interest in bee-keeping, and is as well posted as most bee-keepers in regard to practical bee-keeping. He is the man who has told us the most about *Apis dorsata*. In fact, we could hardly ask for more than he has told us from time to time. I should not devote all my energies to bees alone, as I would examine a little into the horticulture of the East, especially in regard to palms and fruit-trees.

In some of the European museums they have splendid collections of bees, and in most cases their products. It would be necessary for me to see these specimens and see exactly what

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place they come from—in fact, the exact locality—and so save all unnecessary delay afterward.

It might be necessary to go as far as Timor-Laut or Flores, in which case it would take a long time to get there. It might then be most convenient to return by way of Samoa and Panama.

The government of India is, perhaps, the most liberal one in the world toward scientific enterprise. They spend money lavishly to encourage science in agriculture. At the same time, it must be borne in mind that the religion, manners, and customs of the natives have to be respected, and Europeans are almost wholly excluded from some places on that account. It is very seldom that foreign people judge a stranger correctly, assigning all sorts of reasons for his coming except the correct one. The natives of South America used to wonder why I wasn't married. This was perhaps the most wonderful part of my story to them. What must it be with the seclusive Mohammedan and the bigoted Hindu? Perhaps they will let you take a hive away, more likely not. A man must have the patience of Job to deal with such people, and an enthusiasm that will carry him through it all. The people of India are extremely opposed to having to do with the animal world. Every animal is sacred. Only those who have had experience with bigots know how perverse a thing human nature is. It is fearful. A common British soldier caused the Indian mutiny by saying that the cartridges of the army were greased with lard. The fact was, he did it as a jest; and yet thousands lost their lives over such a small affair.

There are splendid botanic gardens at different places in the far East, and the aid and comfort of such could be depended on. The empire of India is a vast region, having all climates, all sorts of people, and all sorts of bees. A country with 300,000,000 people is not to be sneered at.

My experience in traveling in barbarous or semi-civilized countries is, that no hard and fast route can be laid out. To a person sitting by his own fireside, some of the troubles of travelers seem childish. Humboldt, in the city of Havana, tried for ten days to find a man or boy to climb a palm-tree for him, though he offered a good sum for the service. Only a man with an official standing is *the* man in the East; otherwise the native will pay no attention to his wants.

It will be necessary for me to enlist the sympathy and interest of intelligent people *en route*, and this is no easy matter, sometimes, as many would think I was going to make a fortune.

Months might be necessary to get only a little information in regard to the habits of the bees of a locality, as it is hardly to be expected that the natives will know any thing of value to us. But these things are all problems, and can be solved only by actual attempt. I hope you will make it plain that these bees are not new *races* but new *species*. All we wish to know is, whether they are useful to us or not; when that is solved, plenty of colonies will be imported. I feel confident each attempt will bring the matter nearer a solution, and some good result therefrom.

Bermuda, June 23.

[See footnote to the former article on the subject, page 527.—Ed.]

PROFITS IN BEE-KEEPING.

THE CORRECT AND INCORRECT METHOD OF FIGURING THE COST.

By Adrian Getaz.

Figures can not lie; but if you put the wrong figures in a sum, you will get the wrong result, precisely because figures can not lie. In Gleanings for April 1 is the following from Mr. Clayton:

"Suppose we rate the two-story hive (empty) at 75 cts.; the drawn combs are, for purposes of income, well worth 75 cts. each; 19 combs to hive is $11.25; bees, say 4 pounds, which would be a fair colony at the beginning of the season, at 50 cts. per pound, $2.00. Total value of hive ready for business. $14 00.

"Years of records kept by individuals in average locations tend to show that the average annual production does not exceed 70 pounds of honey and ⅛ pound of wax per colony. Your cash outlay for your colony will be, for case and can for your 70 pounds of honey, say 45 cts.; labor, 60 cts.; freight, 70 cts.; commission, 18 cts. Now let us see what we have, estimating honey at 5 cts. in the market:

70 pounds of honey	$3 50
⅛ pound of wax	11
Total	$3 61

"Our expenses will be:

Interest on $14.00 at 8 per cent	$1 12
Cost of case and can	45
Labor	60
Freight	70
Commission	18
Total	$3 05

"That shows a net profit of 56 cts. from our colony. Your honey has cost you a fraction over 4⅛ cts. per pound. At 5 cts. per pound, the producer who gets his range free, and successfully dodges the tax collector, will, if he produces and markets 20,000 pounds, have the munificent sum of $130.00 with which to buy himself a pair of overalls and a year's grub for the wife and babies."

The fault in the above is, that it leaves the impression upon the mind of the reader that, after the honey is sold and all the expenses paid, there will be only $130.00 left. But this is

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wrong; for the interest on the value of the above colony is not an item to be paid in cash, neither is the labor of the apiarist; so, after all, the only actual cash expenses are

Cost of case and can....	70
Freight.....	45
Commission.....	18
Total:	$1 33 instead of $3 05.

This makes an actual cost, so far as cash expenses are concerned, of nearly 2 cts. per pound; and if the 20,000 pounds of honey are sold at 5 cts., there will be $600.00 left to the apiarist to buy "a pair of overalls and a year's grub for the wife and babies."

This is not all. The above calculation is based on a supposition of an annual yield per colony of 70 pounds and a total yield of 20,000 pounds. This gives 285 colonies only; but an active man ought to be able to take care of three or four times that number.

Further on, Mr. Clayton states that the honey sold by the bee-keepers for 4 or 5 cts. is retailed out for 8 or 10 cts. per pound, and suggests that the difference is too great. Perhaps it is; yet we must remember that the grocer who sells your honey has a great many expenses to meet—license, clerk's salary, store rent, delivery-wagon, book-keeping, collecting, etc., and, what is worse yet, losses from people who fail to pay for what they buy. If, before reaching the retailer, your honey has to pass through the hands of two or three commission or wholesale merchants, the discrepancy between the price paid by the consumer, and the price received by the bee-keeper, will necessarily be considerable.

As to the best method of selling, sell as much as possible in your home market. Peddling will do if only a small crop is to be disposed of, and if the apiarist has nothing better to do. As a rule, it takes too much time in proportion to the amount sold. For my part, I should prefer to keep more bees, and work in the apiary, instead of spending most of my time in peddling out a smaller crop.

To avoid unnecessary expenses, sell directly to the grocers of your nearest cities. Do not sell too much to any one until you find out whether he is reliable, unless, of course, it be a cash sale. In the beginning you will have, in most cases, to begin by leaving a few pounds to be sold on trial, and returned to you if not found satisfactory. After a line of customers is established, it will be as easy to dispose of a large crop that way as it would be to send it to a commission merchant; and you will not only save the commission, but probably get a little above the market price, provided, of course, your honey is not too bad or badly put up.

WHY THE PRICE OF HONEY IS NEARLY INFLEXIBLE.

The question has been asked lately why the price of honey is now almost invariable, no matter whether the crop is large or small. The answer is not hard to give. Glucose (or, rather, corn syrups) are now produced in enormous quantities, and sold at a close margin. As they can be produced in unlimited quantities, their price can not vary, even if the demand should increase. The result is, that the price of honey is governed by the price of the corresponding quality of the corn syrup. I say "corresponding quality," because there are different qualities of corn syrup as well as different qualities of honey. As the honey is decidedly superior it will always sell a little above the corn syrup, but not much; for if the difference were too great, people would rather buy the somewhat inferior substitute. On the other hand, should the production of honey increase considerably it would not decrease the price materially, but simply displace a corresponding quantity of syrup, from the fact that at equal or even slightly superior prices, people will take honey in preference.

Knoxville, Tenn.

[Your criticisms on Mr. Clayton's method of figuring out the cost are well taken from a business standpoint. Mr. C. also, as I have previously pointed out, placed too large a value on drawn combs; namely, "75 cts. for purpose of income." He should put down only their market value, or what they can be replaced for.—ED.]

IS THE CALIFORNIA HONEY CROP A FAILURE?

THE HONEY EXCHANGE AND ADULTERATION.

By W. A. H. Gilstrap.

"The honey season in California, we are told, is practically a failure all along the line. Eastern honey will have little if any competition from the Pacific coast."

So reads an editorial in GLEANINGS for July 1st. This mistake is pardonable in an Eastern editor when a California writer (Rambler) says on page 487, *Am. Bee Journal*, 1895, that California honey is produced before the Eastern markets are established.

To enlighten the above, let me say that we have a place in the Golden State that we call the San Wau-*keen* Valley (spelled, or, rather, misspelled, "San Joaquin." This part of the State is not considered in the above, and yet we produce honey every year. The king of honey-producers in this valley is Mr. Daugherty, of Bakersfield, with only 1400 colonies, I am told. I know perhaps 20 men who produced over 8 tons each last year. Bees are now fairly started on storing surplus, which was not true one year ago. What I mean by "fairly started" is for all stocks to be at work and surplus being removed from the stronger ones. The season closes anywhere from Aug. 30 to Oct. 5, depending on season and locality. Perhaps you will see from 20 to 40 cars of our honey beyond the Rockies later in the season, which would keep

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California in the ring until the southern part of the State gets another crop.

I don't know of any "bug-herder" who is getting rich very fast just now. Many are tying up to the Honey Exchange, and the future will reveal the wisdom or lack of wisdom in so doing. I for one do not fancy the idea of selling some honey at 3 cents, and giving the rest away as tare to a set of men who love us as a cannibal loves his latest prisoner. I hope the courts will settle the adulteration question. So much talk on the subject is no good. We sell some honey to a merchant or commission Shylock, and then toot our horn full blast to the consumers (of course they hear it), "That stuff is adulterated. I know there is but little honey in it. Toot! toot! Here is some more just as good." Common sense would suggest something like the California Honey Exchange; but so many will let it alone that it seems necessary for the courts to decide there is no adulteration practiced, or else punish those who do it.

Caruthers, Cal., July 10.

INDOOR VS. OUTDOOR WINTERING.

A PROPOSITION FOR DR. MILLER; WINTERING EXPERIMENTS AT THE MICHIGAN EXPERIMENT APIARY.

By Hon. George E. Hilton.

Dear Ernest:—Referring to your footnote in Stray Straws, p. 488, I will say I am willing, for the sake of giving this matter of outdoor wintering a thorough test, to send to Dr. Miller or any other responsible bee-keeper 10 hives, either made up or in the flat, as may be preferred. They are to put good prime colonies into them, with not less than 25 lbs. of stores. If the loss in them is greater than the loss in the cellar by May 1st, then I will pay for the entire loss; if not, then the parties shall pay me for the said hives at catalog prices. But I don't want them set on the south side of some building, as does Taylor, where the warm rays of every sunshiny day will arouse the bees and entice them out only to be chilled, and never return to the hive. No, I think the so-called experiment at our experiment station in wintering outdoors a very unfair one. Mr. Taylor has a splendid place to winter outdoors, right in his yard, and there the bees should have been left.

By the way, I should like to know how Dr. C. C. Miller knew that the experiments at the Michigan Experiment Station relative to outdoor wintering were a failure. Not one of the six chaff hives at the Agricultural College was taken to Lapeer; and I question whether, at the time of the doctor's writing, an effort had been made to winter outdoors. I wrote Mr. T. J. Butterfield, Secretary of the State Board of Agriculture, some three months ago, asking how many colonies were put into the cellar at the college in the winter of 1892, and how many were left on summer stands; but he has not replied to my letter. I also asked him how many they had in the spring of 1893. I was appointed a sort of legislation committee by the State Bee-keepers' Association, to look after matters in general. Among the other things I did was to go out to the college one day in the spring of 1893, and look over the apiary. The bees had then been out of the cellar some time. If my memory serves me correctly, there were, in the fall of 1892, 46 colonies placed in the cellar, and 6 colonies left outdoors in as many different kinds of double-walled hives. Again, if my memory serves me right, I found only 22 alive, and some of them very weak, in single-walled hives; but the 6 in the double-walled hives were all alive and in good condition. The above seems to be verified by a letter from friend Taylor, bearing date of March 24, 1896, in which he says:

Friend Hilton:—In answer to inquiries in yours of yesterday, I would reply as follows: I received no bees from the State, in chaff hives, and have none now in chaff hives. In single-walled hives I received 22 from the State, and have the same number now, belonging to the State. R. L. T.

I do not know what became of the 6 in chaff hives. Perhaps they were transferred into the single walled hives when moved from the college station. If so, then the 46 put into the cellar must have dwindled down to about 16. One of my hives has stood in the college yard for the past 12 years; and up to the time of Prof. Cook's going away I had never lost a colony. In the mean time I will venture the assertion that over 200 have died in the college bee-cellars that have cost our State hundreds of dollars.

There is much more that might be said in regard to this matter, and it is all in favor of double-walled hives and outdoor wintering; but if you should publish this letter it may bring upon my shoulders such a weight from the "up-to-date" bee-keepers that I shall need another round of ammunition; so I guess I had better stop and await results.

Fremont, Mich.

A MAMMOTH BEE-TREE.

By W. S. Walbridge.

Thinking you and your friends might have some curiosity to see what some of our bee-trees look like out in this region I send you a photo of a real one, taken the day we cut it. You say you don't see any bees. Well, hardly; for they enter through a knot-hole 145 ft. from the ground. This monarch of the Washington forest is commonly known as Puget Sound fir, specimens of which often measure 15 ft. in diameter a few feet above ground. This one measured only 5¼ ft. where it was cut off.

Auburn, Washington, May 24.

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A WASHINGTON BEE-TREE.

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ALFARETTA placed her hands upon Fred's shoulders and said, "My fairy mermaid whispered to me that you were in danger. My fairy said there was a bad man with a big knife, with blood on it—blood of many victims. It thirsted for yours. I came with my fairy mermaid and scared the man away. The man will die, die."

She said this in such a weird tone of voice at that weird hour that Fred became restive under her steady gaze, and he said, "Come, Alfaretta, the man has fled; you had better return home now. I will accompany you. Were you ever here before, Alfaretta?"

"Yes, Fred; papa and I, and sometimes my fairy and I, come here to see the bees fly with their gossamer wings."

Alfaretta led the way through the willows, following a blind trail. It was two miles by the river to Mr. Buell's; but by this short cut across the bend it was not half that distance. When they came to the river again, the path followed along the top of what was known as Buell's Levee. It was built between two slight headlands in order to prevent the overflow of several thousand acres of valuable land. It was at the upper end of this levee where Alfaretta helped Fred from his water bath when he leaped from the steamer Valetta.

The Buell residence was but a short distance beyond, and here Alfaretta, as if a very fairy herself, ran up the walk so lightly and rapidly that Fred was left far in the rear. A mocking laugh echoed back to him as he caught a final glimpse of her as she disappeared in the deep shadows of the house.

"Not much ceremony or sentiment about that parting," thought Fred as he turned and retraced his steps. He walked rapidly along the levee and across the bend, and was soon again in the deserted apiary.

The gloom along the river was in a measure dispelled by the rising moon; but even this good cheer did not lend much companionship. He had little fear that Dawson would appear again; and, rather than remain quiet and on the watch, and desiring to get away from the place as soon as possible, he proceeded, by the kindly light of the moon, to take down the cabin and to remove the material to the river-bank. In one of his turns between river and cabin his shoe kicked up something that glistened in the moonbeams; and, picking it up, he shuddered as he grasped the cold blade of a large bowie knife. It had evidently been dropped by Dawson, in his flight. When Fred thought of Alfaretta's words, "blood of many victims, it thirsted for yours," the impulse was upon him to hurl it far into the river; but upon second thought he tossed it into a box with other "traps" to be removed. "Most remarkable," said he, as he paced to and fro in deep thought. "Truly wonderful that she should appear so silently at that particular moment; unaccountable that she should know all of these things. Surely this is a marvelous case of mind telepathy."

Fred continued his labors until every thing was upon the river-bank, even to the water-pipe through which he acted as proxy for McBurger's spirit.

The flat boat was brought from its hiding, and first his six colonies of bees were carefully loaded upon it. There was no tearing of sacking this time, and its attendant mishaps. The loading of the boat was completed just as the gray streaks of early dawn began to tremble over the eastern hills. When he came down stream it was Fred's intention to load the bee-fixings and then wait for an up-stream steamer to tow him to his destination. But he did not like to stay a minute longer than necessary, upon a spot of such unpleasant nature, and so near Dawson; therefore, as soon as loaded, the boat was pushed off; and by dint of hard labor, and keeping as much as possible out of the sluggish current, he made Buell's Landing in a couple of hours.

These good people were preparing to partake of their morning repast as Fred appeared at the door of their adobe residence. After the usual salutations a place was made for him at the table. Alfaretta, who was usually the first one up in the morning, had not yet made her appearance; and the unusual occurrence excited some comments between Mr. and Mrs. Buell. Fred said nothing then, however. The excitement of the night, and the need of food, led him

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to attend strictly to that business first. He knew that, if he launched into a rehearsal of the unusual occurrences of the night, it would destroy the appetites of his friends, besides interfering with his own. He therefore mildly answered Mr. Buell's questions about bees, and was pleased to note that his symptoms of bee-fever were developing quite rapidly.

"Mr. Buell," said Fred, "I have one colony of bees on board that is in a different-sized hive from the rest. It is what is known as a regular Langstroth hive, while all of the other hives are of different size, both in body and frame. I will make you a present of that colony if you will accept it."

"Surely, surely, Fred, you are too generous. I should certainly like the bees for a study, and am willing to pay you for them."

all good and interesting; but the best for a beginner is known as the A B C of Bee Culture. The author, Mr. Root, of Medina, Ohio, also publishes a paper, GLEANINGS IN BEE CULTURE. In order to manage the bees properly you will need a smoker. I have one in my trunk, which is now on the way from Sacramento, and which I will show you how to use until you can send for one."

"But, dear husband," said Mrs. Buell, "you seem to forget what vicious insects you are bringing to the place. We shall all get stung, and you know Alfaretta may be greatly injured by them"

"Not the least danger," said Mr. Buell. "Alfaretta has been to the old deserted bee-ranch many times. She says the bees have angel wings, and she seems always to be upon

"HE WILL DIE—DIE."

"I have already received my pay, Mr. Buell," said Fred, "in your kindness to me when I came ashore here so unceremoniously and in such a plight."

"I performed only my duty to a fellow-being in distress," said Mr. Buell; "but if you insist upon leaving the bees, I shall think that my bread cast upon the waters at that time is returning in a few days, and with winged crumbs at that. I shall feel myself under many obligations to you; and now that I am to become a bee-keeper, is there not some book upon bee culture that I can get?"

"Yes," said Fred, "there are several books,

good terms with them."

Fred had now fortified the inner man, and, calling up the episodes of the night, he said, "Mr. Buell, I had something of an adventure last night in which Alfaretta—"

"Sh—!" said Mrs. Buell, putting up a warning finger. "I think Alfaretta is coming from her room."

Then the old song was heard; and with the concluding refrain,

> Let me to the wild winds hark,
> And hear what they say to me,

she entered the dining-room.

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"Why, Fred Anderson," she exclaimed, as she saw him, "the wild winds said to me this morning that you would be here for breakfast. And, papa," she said, "my mermaid fairy came to me in the night and told me to hasten away, for our Fred was in danger. The fairy led me to the old bee-ranch. I crawled—crawled as silently as a shadow—upon the old tree stump, and all the fairies in the river and the woods helped me to scream; and an evil man sprang out of the weeds, with a big knife in his hand, and he whined like a dog, and ran away; and, papa, he will die—die;" and she showed her teeth in that uncanny grin that the family were so used to seeing."

"There, dear Alfaretta," said her father, "you shouldn't let such things enter your head. You must have had horrid dreams in the night."

"If she has been dreaming," said Fred, "I also have been dreaming; for what she says is true." Then Fred rehearsed to an interested group of listeners the various phases of the night's adventure.

"Wonderful!" said Mrs. Buell.

"Inexplicable!" said Mr. Buell.

"Supernatural!" quoth Mrs. Buell.

"Yes," said Fred, "and I have had to pinch myself several times this morning to find out if I had feeling, and was in the land of the living."

"And I," said Alfaretta, "have had to spit snakes to see them crawl and squirm and squirm."

This remark caused evident pain to the parents, and they arose from the table. Mr. Buell and Fred were busy the next half-hour in locating the new one-colony apiary. The hive was placed some fifteen yards from the house, in a cosy nook beside the cypress hedge, and Mr. Buell felt himself nearly a full-fledged bee-keeper.

"And now, my good friend Fred," said Mr. Buell, "I will tie my boat in tow of yours and help you navigate your load to the Ghering ranch. The boat is an unwieldy thing, and I don't see how you brought it around the bend thus far."

"I had to work for it," said Fred, "and I have no doubt the same amount of labor would enable me to get over the remaining three miles."

Fred found the good strong arms of Mr. Buell a great help in the management of the boat, and in a short time his valuable load was moored at the Ghering wharf.

When Mr. Buell started for home in his own boat he said, "Now, Fred, to-morrow is Sunday; just run down to our place and cheer us up."

"I will, Mr. Buell, if I do not sleep all day," said Fred, with a smile.

The men on the Ghering ranch had just come in to dinner, and they were full of curiosity and questions; and Fred clearly saw that here would be a few more candidates likely to be taken with the bee-fever.

He refrained from telling Mr. Ghering or the men of his adventure with Dawson. He had no Alfaretta to step in and corroborate his statements. He also thought that the men would look upon his story as brag, and, not wishing to appear in that light, he said but little about his night's work.

Mr. Ghering was getting so interested now in the setting-up of an apiary upon the bluff that himself, team, and all of his men turned in and helped to get the material from the boat to the bluff, half a mile away. So much help made the task short and pleasant, and Fred blessed the hour when he fell among such good neighbors. Matt Hogan was his foremost helper; and, said he, "Misther Fred, does yees bees afther thinking the loikes of me wud make a baa-kaaper?"

"I don't see any reason why you shouldn't," replied Fred. "To become a bee-keeper you must learn to take stings with equanimity."

"Take baa-stings with equal-nimity, is it?" said Matt. "Shore, Misther Fred, I don't loike them patent medicines at all at all; wouldn't it bees just as well to take the stings wid a dhrop of whisky? I'm afther thinking it would betther suit the thraits of me char-*ack*-ter."

"Ha, ha! Matt," said Fred; "but equanimity means calmness, coolness, composure. I have heard of fellows who would court a bee-sting in order to get a drink of whisky; but a true bee-keeper must submit to stings, and not make a fuss over it."

"Oi see, Misther Fred; but me ould head bees so thick it would take a mule to kick new idaas into it. But I musht be lavin' yes, for there's Misther Ghering shoutin' fur me with energy enough to crack his liver, and me asittin' here with—with—aqualnimity. I wonder do I get it right, Fred?"

"That's it; you'll do," said Fred, with a smile, as Matt hastened away to the summons of the boss.

That evening the steamer Valetta came up the river, and, in sight of Ghering's Landing, gave the whistle three long toots. The men knew from this signal that the boat would pull up to the little dock, and hastened down to see what would land. It was what Fred was expecting—his trunk. The men made a very good substitute for a baggage transfer, and the trunk was safely deposited in the cabin.

A bee-smoker, honey-knife, queen-cages, and several other bee-fixings, were placed before the men for inspection. They had never seen such tools before, and were greatly interested in the explanation of their uses. But Fred did not spend much time in satisfying their curiosity. He untrunked clean clothing, and hastened to the river for a bath. It is needless to say that he slept soundly that night, and Sunday

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morning found him greatly refreshed. The Ghering and Buell ranches were remote from church privileges; and the men, though not required to do ranch work, spent the day in mending or washing clothing, or in fishing.

Matt Hogan brought out his fishing-tackle that morning, and invited Fred to share in the pleasures and piscatorial results of the occupation. But Fred declined, and plainly told Matt that he did not believe in that way of spending Sunday. "Besides," said he, "I have promised Mr. Buell that I will drop down to his place to-day."

"Och! that's all very foine, friend Fred," said Matt, "for a young chap that's just from the East; but, loike the rist of us, yees 'll get over that in a few years. An' it's to Misther Buell's yee's will go." Then, in a confidential tone, "Is it the young lady does the attractin'? Och, now, Fred, yee's needn't blush; she's a foine lass but for the sthate of her brain. But, Fred, I'd not mind that in the laast. Me own lovely Biddy Malooney has these mintal aberashuns on occashuns, as all women do, Fred. But, by the name of the great Saint Pathrick, it's the retarnins to rason that fills me soul wid raptures. She's so baamin' wid her two eyes, so coy, so shwate! Och! it's too blisshful fur me to entertain—ho-o-o-o!" and Matt ran off to his fishing at the top of his speed.

"Yes," said Fred to himself, "it's the returning to reason that would bring raptures to my heart and to the whole Buell family. Ah me! the bitterness of the conditions in this case, where the mental aberration is continuous, is too great to think of;" and Fred unconsciously uttered a subdued sigh, ho—o-o-o, and strolled over to the bluff and the bees. But he had promised to call upon Mr. Buell; and, after seeing that every thing was working harmoniously on the bluff, he secured a small boat and floated with the lazy current down the river.

All seemed to be quiet and fitting to the day around the Buell residence. The doors and windows were closed, which Fred thought remarkable, seeing it was a warm day. "I guess that's the way they have of spending Sunday," thought Fred, as he stepped lightly to the door and knocked.

There was a rustle within, and the door was opened just the merest trifle.

"Oh-e! Fred Anderson, come in quick," said Mrs. Buell, excitedly, and with nervous haste the door was opened a little further, and Fred was hustled in, and the door slammed so suddenly behind him as to catch his coat-tail.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

SUGGESTION FROM A COMMISSION MAN ON THE KIND OF SECTIONS AND SHIPPING-CASES TO USE.

As you will remember, we have advocated the use of small sections for honey for some years, and now small sections are the standard size—so much so that any sections weighing over ¾ to 1 lb. have to be sold at a discount, and are about out of style entirely. We are advocating now the use of a wood-pulp board wrapper, or cheap carton, for we find the trade calls for honey without glass, but wants some protection from breaking in shipping. These cartons, or wrappers, can be procured at a low price, or about one-half per pound what honey sells for, thereby affording a profit, as dealers do not object to the weight of these wrappers as they do to glass.

We look for a good demand for honey; but the days of high prices are gone by; and the bee-keepers' honey that is the most attractive and most desirable will sell first and for best price, always, and the consumer is more fastidious every season.

A word about shipping-cases: Don't use a case holding over 24 combs (single tier), nor less than 20 combs. H. R. WRIGHT.

Albany, N. Y.

THE HONEY SEASON IN AUSTRALIA.

Mr. Root:—Seeing you American bee-editors are such a happy family, visiting and complimenting one another, and, having a half-hour's leisure time on hand, I have thought perhaps it would not be out of place for myself, as the Australian editor, to have a "drop in," or "chip in" (whichever term is most suitable). So, please imagine the hand-shake, etc., completed, and straight we are into talk. Well, we have had a very bad time during the past twelve months, with our bees. Some eighteen months ago a very intelligent bee-keeper, who had carefully watched the blossoming of the eucalyptus, told me that the following spring would be a magnificent one, as nearly all the gum-trees (they are not annuals, but some blossom once in two years, some in three or four years) were due to be in bloom all together, and they were then budding for it. Alas, however! the drought, the cruel cold westerly winds, and the resultant bush-fires, dissipated all his anticipations, and the past year has been a honey failure right through these colonies. Not only has the honey-flow been a failure, but there have been many losses of bees and so many disheartened bee-keepers, that, should there be a good flow next year, there will not be a third of the bees to gather it.

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I was getting somewhat fearful that a dry winter would be repeated this year, scarcely any rain having fallen for some seven or eight weeks; but a splendid mild rain has come, and I fancy a good clover flow is now assured in the spring.

I notice in your excellent journal you do not seem to know a great deal about alfalfa, or, as we call it here, lucerne. In this neighborhood it is extensively grown; but the honey from it, though beautifully sweet, is very thin—in fact, a stranger, not knowing what it was, would call it sweetened water. I have tried different ways of rendering it thicker, without success.

E. Tipper,
Editor Australian Bee Bulletin.

West Maitland, N. S. W., May 15.

[Here is my hand in return. But we on this side of the big ball have had a good season. It will be your turn next.—Ed.]

HIVES FACING EAST FOR WINTER.

Mr. Root:—The May 15th issue is just received. The Straw on p. 380, in which my name occurs, seems to need a little explanation, which may account for your bees facing north, south, east, and west, wintering equally well, while mine *perhaps* do not. The fierce wintry winds of ordinary seasons in this section make it necessary to give our bees special protection when wintered outdoors. I am in the habit of placing mine in rows with a space of four inches between hives, then boarding up in the rear about four to six inches from the hives. The space between the board wall and the row of hives and that between the hives in the row is then packed solid with maple leaves, fine aftermath, flax, straw, chaff, or sawdust. The front is left exposed. This makes an impenetrable windbreak; and, when facing south, on a clear day the combined heat of the sun without and the bees within raises the temperature at the entrance to 70, and sometimes 80° F., when the thermometer in the shade shows below freezing. On such days I have seen numbers of bees fly out and never return, being chilled as soon as they got a short distance from the hive. Of course, this can occur only when the sun is squarely facing the hive at midday. Those facing east get the benefit of a slight warming in the forenoon, long enough to get up and take a meal, or at least to turn in bed; and by noon the entrance is sufficiently shaded so that they will not be enticed by abnormal heat to sally forth for an airing. In my letter to Dr. Miller I mentioned only 12 hives that were facing east. I had another lot, of nine hives, that I had worked on shares last summer, which I had not seen since I packed them in the fall. They were packed facing east. I have examined them since, and found every one of them in splendid shape.

Of course, when hives are standing out where the winds have full play all around them it makes very little difference which point of the compass they face. In this country all would be equally bad (none could be called good). Even chaff hives need additional windbreaks. Our coldest winds being from the northwest, and the hives being exposed in front, facing south or east seems an absolute necessity. I shall prefer facing east hereafter.

Centerville, Ia., May 18. G. B. Replogle.

INTRODUCING DIFFICULT; MAD BEES AND BANANA OIL.

Can the Cyprian bee be obtained to-day? Two years ago I had them and found them splendid workers. I imported the queen through Mr. Benton. I should like to get them again.

The queen I purchased of you acted so strangely I report to you. I have kept bees 14 years, and never noticed any thing like it. I took the old queen away and put yours with cork cut so the bees could eat through the candy and liberate her. The next day I looked at them. She was liberated, and walking around; but they at once balled her. I dropped the bunch in water, and recaged her; opened the hive two days afterward. She was out, but flew out of the hive, trying to get away. I clipped her wing after catching her, and put her back in cage. I repeated this at intervals every two days apart for a week, and each time the queen seemed to be frightened—tried to escape, and the bees at once balled her. Then I shut her up for a week with about 20 of the bees, in your box, let her out then, when they accepted her at last, and the hive is full of brood.

The bees are working on red clover—that is, Italians. This I never saw before.

Now I want to record a most peculiar fact never noted before. The bees' five hives are about 100 feet away from our factory. We manufacture acetate annyl, or banana oil, occasionally. Now, when we do so, though the bees are so far away, they become crazy with rage, and sting any thing in sight, even coming into the house and stinging us. Of course, I can offer no explanation. After we remove it they at once become normal.

Byers, Pa. Robt. W. Riddle.

[You can get Cyprian queens of Mrs. Atchley. See advertisement elsewhere.

The circumstance you relate, of introducing the queen you got from us, is nothing so very unusual. Sometimes the bees will persistently refuse to accept a queen. This may be due partly to the fact that the queen acts timid, or because the bees are not disposed to accept a new queen, for reasons that are not known to us.

The behavior of the bees whenever you manufacture banana oil seems to be quite unusual, and I should presume the strong odor incites robbing; and yet I can not imagine why they should become so cross unless they had actually been robbing to some extent. Have any of our readers had a similar experience?—Ed.]

Later.—The foregoing answer was sent to friend R., who replies:

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THAT BANANA OIL AND THE CROSS BEES.

Contrary to your presumption, as above, the odor of the banana oil does not, so far as I can see (and I have noticed carefully), incite robbing. It simply enrages them, and it does so always at any time of the year when they fly. So it is hardly probable their crossness is due to robbing. We have also noticed, but to a less extent, that valerianate annyl and valerianic acid have the same effect.

ROBT. W. RIDDLE.

Byers, Pa., June 18.

HOW TO UNITE SWARMS.

How can I unite three swarms at once in swarming season to make box honey fast? I have lots of swarms at my place. I saw in a paper how a man did that, and I should like to try it if I knew how to unite them properly.

Gresham, Pa. A. L. DILLINGER.

[Dr. Miller, to whom this was sent, replies:]

No trick at all to unite swarms. It's a good deal harder sometimes to keep them from uniting. All that's to be done is to hive a swarm in a hive in which another swarm has been hived. There will be no trouble about their fighting if both swarms are hived the same day, nor, indeed, if they are two or three days apart. If you have any choice as to queens, kill the poorer; but if you have no choice the bees will settle the matter to their own satisfaction without your paying any attention to it. If the swarms are small, there will be a decided gain in uniting; but if the swarms are large it isn't so advisable to unite. Unite two large swarms, and by the next spring you will have no more bees in the hive than each would have had if you had hived them separately.

C. C. MILLER.

ALFALFA IN MICHIGAN.

Inclosed I send you two stems of alfalfa, raised by my neighbor, Mr. Myers. He has about 1½ acres, about like the sample. It was sown the 17th of April, 1896, with oats. I asked when the ground was manured last. He said, "Not since I have been on the place, being 22 years," and now any one can find plenty of stalks 14 to 15 inches long. C. H. AUSTIN.

Allen, Mich.

RAPE CULTURE.

I have a piece of rape which commenced to bloom in May, and the bees were humming on it, and, as usual, my stocks made a raid on it when they got an opportunity. I don't think Dwarf Essex would do the bee-keeper much good, on account of its not blooming the first year. With the common kind I find we can sow it in the fall or early spring, and get a crop of honey from it; then turn it down, and sow to buckwheat and get a good crop of the latter. Rape, when plowed in, makes a fine manure, and lots of it; and the honey from rape is No. 1, and white. JAS. PRATT.

Cumminsville, Neb.

AGAINST THE IMPORTATION OF APIS DORSATA.

Good for GLEANINGS! I am glad to see you have taken a decided stand against the costly importation of Apis dorsata, for I never could see that it would be of any earthly use to the bee-keepers of America or anybody else.

If I made that mistake on page 356, I owe an apology to the printer, to whom I had given all the credit of it. I meant to say "laying-worker eggs in worker-cells."

As to the design of the cover of GLEANINGS, it's all right as it is, and the cover of a bee-paper would hardly be complete, to my mind, without bees on the wing.

Reliance, Va. BURDETTE HASSETT.

[The importation of *Apis dorsata* may not be so expensive after all. At the risk of being styled fickle I must say my views on the subject have undergone a revision since reading the article on page 527.—ED.]

THE ABSENCE OF DRONES NOT PREVENTING SWARMING.

Friend Root:—On page 498 you express a desire to know of your readers whether the entire absence of drones will prevent swarming. With a laying queen it will discourage it to some extent, but will not wholly prevent it. With virgins it has no effect. We have had lots of swarms led out this season by virgins from colonies that had drones neither in nor out of the combs. Neither will the absence of a queen prevent swarming in every case. We have had two swarms this season to come forth without any queen whatever. One of the swarms was from a colony from which a laying queen had been taken two days before; the other from which a virgin had been removed one hour before. CLEVELAND BROS.

Stamper, Miss., July 13.

DANDELIONS FOR HONEY.

Dandelions are quoted in all works on forage for bees as a great honey-plant. There is a great profusion of them this year, but I haven't seen a dozen bees on them this season. It was very dry all through April and May. Is that the probable cause? GEO. L. VINAL.

Charlton City, Mass., June 15.

[Quite probably.—ED.]

SWEET CLOVER AND SWEET-CLOVER HONEY.

Bees are still rolling in the honey from sweet clover. As to sweet-clover honey, I can say it is of a better flavor than any white-clover honey I ever ate. G. E. NELSON.

Bishop Hill, Ills., July 20.

[Tastes may vary; and while I do not think the flavor quite equal to that of white, it is nevertheless first-class white honey.—ED.]

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PUTTING QUEENS IN TUMBLERS.

Question.—I bought a colony of bees whose queen's wings were clipped. When they swarmed I picked up the queen from the alighting-board and placed her in a clean common tumbler. The hives were changed, and, upon return of the swarm, the queen allowed to run in with the swarm, after which it was taken to its new stand. The next morning the most of the bees returned to the old hive, when I found the queen dead at the entrance. I also caught another queen and placed her in a tumbler. She also died while confined, which was about twenty minutes. A wire screen was placed over the tumbler to prevent her escape. What was the cause of their death? I do not think I injured either in handling.

Answer.—Were it not that I have known of many queens dying under similar circumstances, I would not take up room in GLEANINGS to reply to this question; but as it seems to be a common custom to place queens under tumblers, by beginners, if the loss of valuable queens can be saved by a few words of mine then it is my duty to give them. The first queen I ever lost was lost in just this way, I not understanding why it was not best to cage a queen under a glass dish, through which I could see the queen and know she was safe. The cause of the death of the first queen is not so apparent; yet it is my opinion that she was so impaired by the heat in the tumbler or by her struggles to get out that she died from the effects of one or both, during the night. When the bees come to realize her loss and their hopeless condition they did the wise thing, and that which their nature always prompts them to do —return home, where they have not been out of the hive more than 24 hours. The cause of the death of the second is quite plain for three reasons; the first and most common of which is, that the glass tumbler is allowed to stand in the sun, whose heat, through the direct rays, and by reflection also, soon becomes sufficient to destroy the life of any thing but a salamander. No one should be foolish enough to put a queen under a glass or tin dish, and allow it to stand in the sun for a single minute; yet the writer was once guilty of just such foolishness when he first began to keep bees. But our questioner tells us that he placed wire cloth over the tumbler, so that he was not so foolish as was the writer; yet he lost his queen just the same; and this brings us to the second reason why a queen should not be placed in any glass, glazed earthen, china, or tin dish. As soon as the queen finds she is a captive she begins to try to get out, and this she can do only by climbing; and as she can not climb far on the smooth surface of any of the dishes spoken of above, she gets as far as she can and then falls back, only to repeat the effort time and time again, till she dies from exhaustion. The third reason is, that no queen will live any great length of time without food; consequently the bees are constantly feeding their queen, where they can do so. But the tumbler excluded their feeding her, unless she could get to the screen; and as she could not do this, she was liable to die from starvation as well as from exhaustion. The only proper cage in which to keep a queen is one made of wire cloth, or of wire cloth and wood; and it is better to have all such cages provisioned with queen candy. The bees will generally care for a queen all right where they have access to such a wire-cloth cage; but to be always on the safe side, I bore a hole in the inside end of the stopper, when it is always ready, no matter whether the bees can get at the cage or not, so long as this hole is filled with candy. Such cages are very handy to have during the summer season, and I have some in different places in the bee-yard so I can get one at a moment's notice.

REPLACING AGED QUEENS.

Question.—I have several old hybrid queens that are past their usefulness, and I wish to replace them. How and when shall I proceed to do it?

Answer.—First as to the when: This can be done at any time; but I find that the bees supersede more queens just after the main honey-flow for the season is over than at any other time of the year; consequently, where I wish to supersede queens for any reason I do it just after the basswood-blossoms drop off, as the most of the honey in this locality comes from basswood. Now as to the how. Unless a change in variety of bees is desired, I would advise the beginner to leave this matter of supersedure of queens to the bees, as they will make fewer mistakes, if this matter is left to them, than the smartest bee-keeper in the land—especially where there is any Italian blood in the bees. But if we wish to change the breed of bees, then of course the apiarist must do it. The plan I use most, and like best, is to start queen-cells just before the basswood honey-yield closes, when the bees are in the best possible shape to raise extra good queens; then two days before these cells are about to hatch I go to the colonies having queens which I wish to supersede, and hunt out the queens and kill them. Two days later the nearly mature cells are placed in queen-cell protectors and placed in these colonies; and my experience has been that, in nineteen cases out of twenty, young, thrifty, vigorous queens will be found laying in colonies thus treated, fifteen days later. If we

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do not wish to raise our own queens, we can send away for them; and to make sure that none shall be killed in introducing (and as a few days without a laying queen in any colony is of little consequence at this time of the year), the old queen should be killed nine days before we expect the new queens to arrive. When they arrive, open the hive and cut off all queen-cells, when the queen is to be introduced by letting the bees eat the candy away till the queen is liberated, according to instructions generally accompanying the queen.

Another way, which is usually successful, is to remove the old queen in the forenoon of a pleasant day, and at night, after the bees have all returned home, give them a little smoke; and when they are filled with honey allow the new queen to run in at the entrance. Do not open the hive for four or five days, and you will rarely fail.

[I indorse all friend D. has to say on queens in tumblers. Perhaps it might be well to add that, in our experience at least, queens will not stand direct rays of a summer sun very long without injury. Many have died for us in queen-cages when left exposed to the hot sun.

We too have tried the last method of introducing with good success. The secret seems to be in letting the bees alone a few days after the queen runs in at the entrance.—ED.]

L. E. W., Vt.—We regret to say that the Langdon non-swarmer does not work as it was at first expected by its friends, and we have therefore taken the matter concerning it out of our A B C book. It has been abandoned as a failure by every one now, I think.

L. D. Ga.—In the case of the Heddon short method of transferring, in which two-thirds of the bees are drummed out of the old hive, leaving one-third in the hive set to one side, there may be and probably will be a queen reared in this latter portion, providing you do not yourself destroy all the queen-cells until after the brood is all capped over. At this time they would be hopelessly queenless, and could be united at the end of 21 days.

M. F., Col.—I can hardly explain why your bees apparently dwindle away, without knowing more particulars. It may be due to the fact that they are queenless, or that they have some disease. If not queenless, and if they are perfectly healthy, the trouble may be owing to a poor queen. If there is such a one present, get rid of her and give them a frame of hatching brood and a frame of unsealed brood, and let them raise a queen of their own; or, better yet, introduce to them a queen that you can get of any of the breeders who advertise in these columns.

SOLAR WAX-EXTRACTOR FOR RENDERING OLD COMBS.

Some seem to think there is no better way to render than the submerged-sack method; but, all things considered, the solar is far ahead of this method. The first saving is in time. I save all odds and ends, burr-combs, hive-scrapings, and bottom-board litter, and put all in the solar. The very blackest old comb you may have —though not yielding as much wax as the meltings before-mentioned—will give a bright wax from the solar; but if put through water it will be very dark.—*R. C. Aikin, in American Bee Journal.*

ANOTHER BEE-STING CURE FOR RHEUMATISM.

For nearly a week previous to last Wednesday, nearly all the pain I suffered was in my instep. On that day I was sitting in a neighbor's apiary (he has my bees on shares this season) to watch for swarms while he was absent. As a swarm was issuing I hobbled along to secure the queen. I put my "game" (lame) foot, on which I had a black sock and a low slipper, near the entrance of an adjoining hive. In a jiffy three or four bees had given my painful instep as many hypodermic injections. On the instant I thought of what some had recently said about his sciatica and bee-stings, and I let the stingers alone until I had secured the queen. I was almost immediately relieved of the pain in my instep, and in a few minutes I could stamp my foot quite firmly on the ground without pain, which I had not been able to do before for several weeks. Last night, pain in the same instep was a little annoying; and if it doesn't behave itself in good style in the future, more bees will have to be sacrificed for "suffering humanity."—*Dr. A. B. Mason, in the American Bee Journal.*

BEE-KEEPERS NOT SUFFERING FROM OVER-PRODUCTION OF THE HONEY-PRODUCT.

I have read with much interest the article of Mr. Doolittle on page 163, with reference to over-production, but I can not say that I was greatly surprised at the range of prices of honey from the year 1874 to the present—a period of 22 years. It is true that the difference between 28 to 30 cents per pound obtained in 1874, and 13 to 15 cents per pound obtained at present, is very large, but in my opinion the trouble is not in the over-production of honey, but in the increased production of other luxuries and necessaries of life, combined with a contraction of the currency of the country. It is perhaps true that there is more honey produced now than in the year 1874, but not to a greater extent than the increase in the population of the country; and this being true, everything else being equal, there should be no very great difference in the prices or demand for honey. But every thing else is not equal. There has been a great increase in the production of the fruits and sugars, and these combined, at their present low prices, to a great extent, have supplanted honey, and form the principal table-luxuries of the people.

It is a rule, founded in economy, that the human family will use and subsist upon the cheaper commodities, if the cheaper commod-

ities will meet the ends in view. And this rule applies with unusual force at a time like this, when there is a stringency in money matters.

If Mr. Doolittle will reflect for a moment, he will remember that there has been a general decline in prices, of nearly all kinds of products, since 1874. Wheat, corn, pork, beef, potatoes, and other farm products have declined to an extent that is almost alarming, and we should not be surprised to see honey in the wake.

And there is still another rule, founded in economy, that has its influence on the prices of honey. Honey is a luxury: and when men are in the straits, financially, they curtail expenses, and the luxuries are the first to be dispensed with.—*H. F. Coleman, in Am. Bee Journal.*

The date of the North American has been fixed at Oct. 7th and 8th, and the place is Lincoln, Neb. For further particulars see Convention Notices elsewhere.

It may be a surprise to some, but we have four of those large Boardman solar wax-extractors in use in our apiary constantly. They are used principally to work over and refine wax dirt, sweepings and scrapings from the wax-room floor. It is astonishing to see what nice wax they will make out of what appears to be dirt, and very dirty dirt at that.

The Jardine bee-escape, illustrated on p. 428, does not work. We have been trying it thoroughly, and I regret to say that the hinges to the little doors became so badly propolized after a few days' use as to become inoperative. Come to think of it, hinges of any kind in a bee-escape have proven failures, because bees will propolize working joints. The Porters have, in adopting slender flexible brass springs, hit the nail on the head. So far the Porter, with us, is in the lead.

Here is a letter more like what we have been receiving than the one referred to protesting against saying so much in favor of sweet clover:

Dear Ernest:—I see in Gleanings for July 15th that some one has made complaint about your speaking favorably of sweet clover, claiming that it is a noxious weed. Now, I wish to say that I hope Gleanings will not give sweet clover a black eye, for I do not see how any one can call it a noxious weed, as stock will eat it, and it is such a fine honey-plant. We must plant something that will yield honey, as the honey-producing wild flowers are getting to be very scarce.

Please keep the favorable paragraphs on sweet clover going right along in your journal.

Slaghts, Colo., July 23. W. H. Price.

Yes, indeed, we propose to keep up the agitation if the will of the very great majority is any criterion to go on.

IMPROVEMENTS IN BEE CULTURE.

Some time ago it was asserted that no very great improvements might be expected in the line of bee culture; that we had about attained perfection. If I am any judge of apicultural progress there are still some great advances yet to be made over our old methods. Just as soon as we drop into that rut, with the feeling that we have "got there," and don't need to try to better ourselves, just so soon shall we fail to make progress. I can not think we have reached perfection in any thing relating to bee-keeping yet. I believe, first of all, we need and shall have foundation with deep cell-walls and thin base; that along with this improvement will come at least partial control of swarming. I believe still that there is a chance for improvement in styles of brood-frames; and there is still something yet to learn as to the best size of hive.

A QUEER BUT A GOOD SEASON.

This season is peculiar in several respects. To begin with, every thing started out much earlier than usual. Fruit-bloom showed up quite perceptibly in the brood-nests—something it has not done for some years. Basswood came on almost a month earlier, with great promise. It did, in fact, begin to yield nectar before white clover (it usually *follows*); but the quantity of blossoms was a very imperfect index of the *amount* of honey. Then we waited for white clover; but instead of honey from that source there was a fair flow from sweet clover. Now that this is going to seed, white clover near the latter part of this month (a month late), owing to these copious rains, is beginning to show itself everywhere. Honey is coming in again, and being stored. How long this will last, or what we may expect next in this season of contraries, it is hard to say. During this month we have drouths as a rule; but *now* the ground is as wet and soaked as in the spring. The roads are muddy, and the bicycle is at a standstill. This is almost unheard of in Rootville during summer.

REDUCTION IN FREIGHT RATES ON EXTRACTED HONEY IN FLORIDA.

The following letter from W. S. Hart speaks for itself:

Mr. Root:—Kindly announce, through the columns of your magazine, that, through the efforts of Mr. W. J. Jarvis, of the Florida East Coast Line, the committee appointed at Atlanta "to secure a reduction of freight rates on honey" have succeeded in securing a reduction of the rate on extracted honey to that of 6th class, which is the rate charged for syrup, over all lines in Florida. I feel quite confident that this reduction could have been secured over all the lines of the Eastern States had both the committee and bee-keepers generally brought more pressure to bear at the meeting in Washington, as suggested by me through Gleanings. As it is, it will be quite a boon to honey-producers of this

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State, and stand as one good result of the Atlanta bee-keepers' congress. W. S. HART,
Hawks Park, Fla. Chairman of Com.

As Mr. Hart intimates, I see no reason why the North American or the Union, when it shall be reorganized, may not be able, by continual hammering, to get as good legislation for the whole country. If there is any place where the trite but old adage applies, "If at first you don't succeed, try, try again," it is here. There is no reason in the world why honey should not be classed as syrup. Of late years it has been sold at nearly the same price—so near it that it ought to go at the same rate.

AMALGAMATION, AGAIN.

I BEG pardon for referring to this old subject again; but it is rapidly reaching a point where I firmly believe it will solve itself. Here is what Mr. Brodbeck has to say:

Friend Root:—I notice that you indorse Mr. York's suggestion for a vote on the amalgamation question. Now, while I am not opposed to an expression on this subject by the members of the Union, yet I am inclined to believe that, if we take this action, and the majority should favor amalgamation, it would be binding. Your proposition of converting the B. K. U. into a distinctive national organization would then fall to the ground. Now, do you think it would be wise to risk this? The state of the case as it stands at present resolves itself into one of two propositions: The perpetuation of an international association, by the combination of two, or the utilization of the one (international) in the construction of a national, or, in other words, either a national or international association. Then, again, why should this limited membership of the Union be given the power to decide a question of such vital importance to the whole bee fraternity? Those who are not members of the Union can not vote on this question, and yet we propose acting on a subject which is of as much importance to them as to ourselves. Now, if we desire to enlist their future interest in our proposed new organization (whatever that may be), would it not be wise for us to act in such a way as to inspire an interest in every bee-keeper in the United States at the very beginning? If we desire to make it an exclusive organization, it is not necessary to take these things into consideration; and unless we act wisely the result may be the opposite of that which we desire. It has been my intention to write an article for GLEANINGS, summing up the various propositions presented, as the result of my article on a national, etc. GEO. W. BRODBECK.
Los Angeles, Cal., July 11.

In view of what Mr. B. says, I do not believe it is at all necessary for the Union to go to the expense of taking a vote. Let each association paddle its own canoe. If one of them (to carry out the figure) goes over the falls because it is not able to hold its own, let it go. So far as I am concerned, I believe it is best to give up the idea of amalgamation, and make, as I have said before, the Union what we want it to be. By this we do away with the idea of "marrying the two associations," and "the poorer one receiving the dower of the other."

DRAWN COMBS, AGAIN.

THE following letter just at hand, commenting on the editorial on page 538, has just come to hand:

When reading what you have to say of "drawn combs for the production of surplus honey," I was moved to write a few lines. I have in former years read articles wherein the writer claimed that foundation was better than drawn combs. This statement surprised me, as my experience was quite to the contrary. I think if I could have all drawn combs for the sections, to supply all my bees, it would add at least 100 per cent to my honey crop. I use a Given press to make foundation, and have been longing for one with which I could make foundation with cells ½ inch deep. I hope (as you say) that the time may not be far distant when such foundation can be made. Give me drawn combs for brood-frames or sections every time. Of course, for sections they must be clean and white; but for brood I care not if they are 20 years old.
Nappanee, Ind., July 21. L. A. RESSLER.

A good deal was said in the last July *Review*, indorsing drawn combs also. The editor, in commenting on what I said, gives this substantial indorsement:

Full sheets of foundation are accepted more readily than starters; and partly drawn combs, leveled down *a la* Taylor, more quickly still. So says GLEANINGS, and GLEANINGS is right.

Mr. Ressler thinks he could add 100 per cent to his comb-honey crop providing his bees did not have to draw out foundation. When I said I thought we could add a *half* to the honey crop I thought I was putting it strong enough so that some would challenge the statement; but I am not sure that friend Ressler's estimate is very far out of the way.

For some time I have known that the Germans were using a much deeper foundation than we do here in America. One of our customers in that country particularly specifies that his mills shall turn out cell-walls at least ⅛ of an inch deep. This made the whole thickness, including both sides and the base, from ¼ to ⅜ inch. We tried some of this wax, and found that the bees accepted it very readily; but at that time, owing to the large amount of wax wasted, I came to the conclusion it was a rather expensive way to get comb; but, as I said in our previous number, I have confidence to believe that some of our native-born inventors will get up a foundation having very light side walls ¼ or ⅓ inch deep, with a base as thin as the natural. When the problem is once solved, we shall be making one of the greatest steps in advance in the production of comb honey that has ever been made. In the mean time it goes without saying, that Taylor's comb-leveler, a device for leveling down partly drawn-out sections, is a big thing, and should be used by every comb-honey producer.

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OUR HOMES.

Ho, every one that thirsteth! come ye to the waters; and he that hath no money.—Isa. 55:1.

For years I have been talking and writing more or less about pure water. On my wheelrides I have rejoiced on finding a spring, especially if it were one of soft water. Again and again have I enjoined upon the friends where I have visited, that they should thank God for their beautiful drinking water. I remember especially the springs of soft water and the wells of Florida. While at friend Keck's, near Bowling Green, they told me the drinking water seemed to them just like water from melted freshly fallen snow—snow-water they called it. Well, while looking at that great spring near the town of Thompson, Geauga Co., O., described elsewhere, it seemed to me as if we *must* have soft water on our own premises at the Home of the Honey-bees. We have an abundance of rain water, it is true; but it is a very difficult matter to keep rain water in the summer time so that it shall remain as pure and wholesome as the water from a running spring. By the way, do you ever think how hard a matter it is to produce a *real* spring artificially? In many of our public parks, and at the Soldiers' Home, in Dayton, O., they have "manufactured" springs; and I quickened my steps as I caught sight of one of them; but when I stooped down to drink from the cup hanging near, what a disappointment! The water was carried in pipes, and let out through the rocks. It was very good water compared with the water of our modern cities; but it was not the spring water of the country, *at all.*

I have told you about the spring on our own premises; but it is not *soft* water—not by considerable. It is very nice and cool on a hot day; but even with my present tiptop health I should hardly dare to drink as much hard water as I crave on a hot summer day; besides, hard water never quenches my thirst—I mean it never satisfies, for in a little time I become more thirsty still. If I keep drinking this water (laden with the salts of lime and other chemicals) pretty soon there is a rumpus in the digestive apparatus. From the age of four till I was sixteen I lived in Mogadore, Summit Co.; and our drinking water came from a soft-water spring at the base of the sandy hills. How often have I craved a drink from those refreshing waters near my childhood home! You have all read the story of David when he longed for a drink of water from a well in his native town of Bethlehem, then in possession of the Philistines; and you remember how he poured it out on the ground, reckoning it as the blood of the three mighty men who broke through the ranks of the enemy in order to get it for him.

When I first commenced my wheelrides some years ago I visited most of the noted springs in Medina Co.; and I asked, through our county papers, for information in regard to the nearest soft-water springs. I did not find any nearer than about five or six miles; and I have actually ridden that distance several times just to have a drink of spring water. Is not cistern water all right when the cistern is properly made, the water filtered, etc.? Yes, it will do very well if you boil the water, then filter it, and cool it in a refrigerator. This is considerable trouble; and even then if it stands very long exposed to the air at a summer temperature it will soon contain forms of animal and vegetable life that can be detected by means of a microscope. Do you tell me that spring water, as it comes right from the rocks, also contains microbes? I know some people talk that way, and some would-be scientists; but it is not true. I have handled some of the best microscopes to be had, and I could never find a trace of organic matter, either animal or vegetable, in cold water just as it issues from the rocks. Water from a well is all right providing enough of it is taken from it every day to keep up a steady running stream at the bottom. A well that stands still, or one that is allowed to fill up so that the water *stands*, is not the thing for people to drink from. It becomes more or less *stagnant* water. Better water your horses and cows at the well where you get your drinking water for the household; better still, have a windmill to keep pumping it so as to let off the surplus water. This will give you the conditions of a running spring. I do not say that other waters may not be as good as the waters from a running spring; but I think the chances are in favor of the latter. I am sure I am sound in regard to the matter, for I had quite a talk with an officer belonging to the Ohio State Board of Health, only a few days ago, and he said my ideas on the subject of pure drinking-water were sound and correct.

About a year ago somebody told me there was a well at our gristmill, nearly a mile away, that furnishes soft water. At first I had so little faith that I did not pay much attention to it. Finally I visited the mill, and saw the stream of water that is pumped daily to supply their boiler. It certainly tasted very much like soft water. I carried a little pailful of it home to let Mrs. Root see whether it would really "wash." I had carried her so many samples of water that I thought were soft she was becoming incredulous. I detected a little sarcasm in her smile as she took the water and reached for a piece of soap. She expected, as a matter of course, that it would all curdle, like the many samples I had brought before; but to her great surprise and astonishment it made a beautiful suds. She tasted of some of that remaining in the pail.

"Why, this is not soft water to the taste; but as sure as you are alive it washes most beautifully. Why, it actually seems as if there were a little borax, or something of that sort, added to make it suds still better than rain water."

I too decided that there was a little taste of something in the water, different from pure soft spring water, and we boiled some of it down. There was a little trace of a whitish powder; but it was beautiful water to drink or to wash with, notwithstanding. I interviewed the men at the mill. They said the water never made any scale on the flues of the boiler at all. Only one set of flues had been in the boiler since they put it in place, ten years previously; and the expense for repairs since that time had not been *ten cents.* During that time we have paid out for flues and for repairs toward a *thousand dollars.* In fact, I have said again and again that I would *give* a thousand dollars in a minute for a spring of soft water of sufficient volume to supply our boilers and other wants. Many of the friends where I have visited have smilingly told me that I might have one of their springs, and welcome, if I could dig it up and move it to Medina; but, of course, I could not undertake it. Why not drill some *deep* wells and see if some soft water can not be found? Why, dear readers, since we have been on our present premises we have dug *four* wells down to the surface of the rock. We have also drilled down deep into the rock in at least three other places. The water is always hard—some of it so terribly hard that, when it was spattered on the windows, and dried there, it looked almost as if some whitewash had been put on, on account of the large

amount of salts of lime contained in the Medina waters. Sometimes we have thought it was hardly fit to water plants with—that is, if the water dried up on the leaves.

Well, after I arrived home from Thompson, Ernest commenced again on a theory that he had held for some time; namely, that we could get water like that at the gristmill if we would drill one more well on the *south side* of Champion Brook, on our own premises. The principal cause of his fresh enthusiasm in regard to the matter was that the town had just sunk a well near the gristmill, for public waterworks, and they had struck the very soft water we so much coveted. I finally consented, although I rather preferred sinking the well close to our buildings. The people of our town, however, had a sort of theory that one would have to go south of Champion Brook to get the soft water. I became acquainted with the well-drillers, and greatly enjoyed watching and assisting them in their work. They cleared off the surface of the rock down on the creek bottom, and drilled a hole large enough to take a 5⅝-inch well-casing, down to the depth of about 40 feet. The casing was driven down, and with a sand-pump they removed all the water so I could look down with a looking-glass and see that the well was empty of water. They had cut off all the waters that came out of the rock above that point for about 40 feet. The apparatus is managed by father and son. Their names are Hollenbeck & Son, West Farmington, Trumbull Co., O. When they were ready to drill again, the old gentleman remarked:

"Mr. Root, I wanted you to see for yourself that all the upper *hard* water was actually shut off. We are now going to drill again; and when we strike the next water *it will be soft.*"

I hardly need tell you that I had been asking that the great Father above would reward our labors. It was not more than an hour or two after that time when my old friend said:

"Mr. Root, here is your soft water."

The pump was put down, and for half a day a stream nearly the size of my arm was turned into Champion Brook—bright, sparkling, pure soft water—or, at least, soft enough to drink, to wash with, or for any thing else. Of course, there was rejoicing all over our premises, and the next step was to provide proper machinery for pulling the water up from its depth of 40 feet, and sending it up still 20 feet higher, and uphill to the factory. Said I:

"See here, boys; it will cost us more to rig up machinery to get this water to the factory than it will to sink another well right up *by* the factory; and I have faith enough to believe that this same vein of soft water may be found anywhere in this vicinity by shutting off the upper veins of limestone waters, just as our friends have been doing here."

The old gentleman and son both indorsed my reasoning, and begged to be allowed to try their hand at getting the same kind of water close by our engines and boilers. Dear friends, it has been done. They made their calculations, and drove their tubing down into the rock to a depth of 63 feet. Then they drilled about 7 feet further and struck a hard light-colored rock that hardly yielded to the blows of the drill, even though the latter weighed something like a ton. Pretty soon we heard the joyful news once more, "Here is your soft water!" The pump was put down, and the muddy water was run into the sewer until it became clear, then we turned it into our big cistern. To test the volume, a common wooden pail was held under the end of the spout of the pump. In just *ten seconds* by my Waterbury watch the pail was running over. The next ten seconds it was full again, and so on. Crowds gathered around to taste the delicious sparkling beverage. Nothing could be clearer; nothing could be purer. Washbowlfuls of snowy soapsuds, made right from our new cold well water, attested its softness. Some of the incredulous would go to the other wells and get a bowlful just to try the difference. Since that time, about a week ago, I often wake up in the night and thank God as I think of that beautiful stream. Three hundred barrels a day for use in our boilers, to cook with, to drink, or to dispose of as we choose! Do you not agree with me that it is one of God's most precious gifts? As the stream will be running whenever our engines move, there is no need of anybody drinking warm or stale water. It is cold enough so nobody cares for ice, and it is so near at hand that pails from the different apartments can be filled "in a minute" I was going to say; but, bless your heart, it does not *take* a minute—only *ten seconds*, and you can keep getting a pailful every ten seconds every hour in the day if you want it.*

What has all of this to do with you at *your* home? Why, my dear friend, it seems to me quite likely that, when we learn the secret of cutting off the unpalatable waters from above, we may, by artesian wells, in many localities, have just the kind of water we want. The whole secret, it seems to me, consists in cutting off and keeping away the water we do *not* want, until we reach the point where we find that which we *do* want.

Our text has something to say about "no money." You may say these deep wells cost a great lot of money. Yes, they do cost something; but when the whole town unites in paying the expense of getting good water for the town, the burden falls but lightly on each person. Our town is planning to do this very thing; and when we come to compare the expense of pure water compared with the cost, first and last, of beer and other intoxicating drinks, well may the prophet say, "And he that *hath no money*, come." Once more: Do not modern developments teach us that God's gifts lie all along our pathway? This wonderful new agent, electricity, has been just as near our homes ever since the world began as it is now; but we have not had the faith and courage until even the last few years to reach forth and take it. So with spiritual blessings. Bunyan, in his wonderful book, the Pilgrim's Progress, tells of a man who spent his life in raking up straws and trash with a muck-rake; yet all the time a shining angel held above his head a golden crown; but he would not drop the muck-rake even to reach up and take the crown as a free gift. Was that simply an allegory? Perhaps so; but I believe it teaches us a truth. Oh may God not only help us to avail ourselves of the pure water that may have been waiting for ages for us to tap the stream and draw for the health of these physical bodies, but may he help us in a like manner to tube off or cut off the evils that come of themselves, that we may enjoy to the full the purifying influences of communion with the Holy Spirit! My good friend the Rev. A. T. Reed, of whom I spoke in my last, has recently paid me a visit. He went through our crops of potatoes that I have told you about. Said I:

"Dear brother Reed, it has not been an ex-

* This seems all the more wonderful when we consider that, within 40 feet of this very well, there is an old one that goes down into the rock at least 30 feet deeper, and yet this has always given us *hard* water. The explanation must be that it is made hard by allowing impure upper waters to go down and mix with it.

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pensive work to keep this field of potatoes thus clean and free from weeds, because I took such great pains to have a thrifty potato-plant on every bit of the ground where there is room for a plant to grow. The weeds gave up long ago because there was not room for them. They have not made me any trouble at all."

Mr. Reed at once took up the thought, and replied to the effect that the greater part of the evil and wickedness and crime in this world might be *forestalled* and *kept out of existence* by letting a healthy growth get a good start in the minds of our children when they are young. Cut off evil, and crowd it *back* and *away* by keeping their young lives full of something good and pure and useful. Cut off the contaminating influences of evil habits in childhood, as we sent down our iron tubing to cut off the contaminating influences of water from above. Carry them safely past the scums and slums until they reach the prompting influences of pure and good manhood and womanhood. Thus shall be ushered in the reign of the new heavens and a new earth.

It was a warm summer afternoon when I got off the cars at Painesville and mounted my wheel. All about Painesville there are beautiful smooth firm roads. In a little while I overtook a gentleman and lady also riding their wheels. There was a long steep hill, and I decided to walk up it, supposing the young people would *ride* up. They, however, decided, as they had already ridden thirty or forty miles, to walk up also, and we chatted pleasantly as we looked over the beautiful surrounding country. By the way, how wheeling does promote sociability! Although we were entire strangers, we chatted as freely as if we had always been acquainted.

Just before I reached the Storrs & Harrison grounds I saw a beautiful nursery of what I call cottonwood-trees. They told me they were sycamore. The trees were in straight rows, perhaps four feet apart. Each tree was remarkably like its neighbor—same height, same size, and all straight; and the growth was so vigorous that there was not a weed nor even a blade of grass — nothing but sycamore-trees. They told me afterward that these trees had no cultivation whatever, and at that time they needed none. As there seemed to be acres of them I asked them where they were going to sell them all. They said they were sold already, and only a year ago they did not have enough to supply the demand.

A little further on I stopped at one of the great warehouses. I was courteously received, and told that, in a little time, one of the members of the firm would show me over the place. Just back of the great warehouse I saw some men working with plant-beds. The beds are covered with glass, even during hot sunshiny July days. More than that, they were forcing cuttings with bottom heat produced with stable manure; but, mind you, they did not allow the sun to strike the glass at all. The glass sashes were simply used to confine the damp air requisite for making cuttings take root. I can not remember what it was they were propagating; but it was some florist's plant, and there seemed to be thousands and thousands of them. Now, the most interesting part of this work was the way in which they kept the sun from the glass. Posts were set up on which cotton cloth was stretched, the cloth being high enough to clear the heads of the workmen. On the south side it hung down just far enough to prevent the sun from striking the glass. On the lower edge of this south side the cloth was attached to a pole, so as to roll it up during cloudy days or when the wind threatens mischief. It made a very nice pretty place for the men to work; and I at once decided that this arrangement was just the thing exactly for growing Grand Rapids lettuce during the summer time. During the months of July and August a great many other plants will do better if partly shaded. The west side of our creek-bottom land is shaded in the afternoon by some maple-trees; and year after year we get some of our best crops where the plants are shaded by the maple-trees every afternoon; that is, the trees throw a shade along about 3 or 4 o'clock. I supposed the roots of these great forest-trees would be detrimental to the plants on that side of the grounds; but the shade seems to do more good than the roots do harm.

By this time a man was sent to show me through the greenhouses, 29 in number. The greater part of them, however, are filled with roses or rose-cuttings. Many of them contain exotic plants, just such as I saw growing while in Florida; and for getting the best results, the temperature of many of these houses is kept at 120°. Although I was interested in plant-growth, at this high temperature I soon began to have a great longing to get out into the open air. Ninety degrees in the shade was quite refreshing after spending ten or fifteen minutes in a temperature of 120. Then we looked over the grounds outside. I suppose a florist would know more about the greater part of their stock than I do. Let me digress a little.

A few days ago, while on a wheel-ride to the home of Matthew Crawford, the great strawberry-grower, I saw a little group of plants on a small rise of ground near the berries. They were golden-banded Japan lilies. Imagine a flower as large as a small-sized pitcher, decorated with the brightest colors in Nature's own handiwork, until one could hardly help exclaiming, "Even Solomon in all his glory was not arrayed like one of these." I sat down on the ground beside the plant, and enjoyed the sight as one enjoys beautiful strains of music. There were three flowers in full bloom on the plant, at the time; and I told friend Crawford I believed I would invest five dollars if I could have that plant on our lawn at home. Well, at Storrs & Harrison's there was nearly a quarter of an acre just like it, in all their beauty. I do not know but the one single plant gave me more pleasure than this brilliant show of bloom. So many were almost overpowering. A little further on there was a square plot or bed made by an ornamental forage-plant. It looked like a patch of sunshine that had somehow become entangled among the leaves of the plant. Again and again I looked off somewhere else, and then turned my eyes on this gorgeous piece of illumination. Talk about blue lights and spectacular scenes produced on the stage! This little plot of Dame Nature's own handiwork was worth more to me than any thing that art can produce in that line. My guide told me they had all these things for sale, but that I would have to wait till fall before planting my bulbs of golden-banded *Lilium auratum*; and this other foliage-plant, of which I have forgotten the name, could be planted out next spring, and would stand several years outdoors, winter and summer. Then we tested some of their new fruits, especially the raspberries and gooseber-

ries; but although they send out great quantities of these things they do not produce any thing like the quantity of fruit as at the Ohio Experiment Station. With the crowd of workmen they employ they say it is hard to keep perfect specimens. Then I passed through one of their great frost proof combined cellars and warehouses, where stuff can be secure from frost, and be packed for shipment. This building has heavy walls that not only keep out frost, but preserve the requisite amount of dampness to handle nursery stock to the best advantage. A little further on I saw an apparatus, to be drawn by a horse, that blows air-slacked lime or any other kind of dust all over the crops where it is desired to keep off insects or for other purposes. The blast of air is produced by a fan that is moved by pulling the thing along—the wheels of the machine furnishing the motive power to drive the fan. Acres of trees or plants may be dusted at a very insignificant cost by horse power.

Just as I was getting to be a little tired, our veteran friend Mr. Storrs himself took me in his buggy, and we went out across the broad acres. Mr. Storrs commenced work in this locality toward fifty years ago. Their grounds now extend over something like one and a half miles along the lake shore, nursery stock growing clear up to the edge of the water. Did you ever hear of roses growing outdoors by the acre? Well, there were not only rosebushes by the acre, but at one place we saw the most beautiful roses that imagination ever conceived, so it seemed to me, and literally acres of blossoms. It seemed almost like enchantment. I exclaimed, "Why, Mr. Storrs, do you mean to tell me that such roses as these are left to

——'blush unseen
And waste their sweetness on the desert air?'

At the prices that such perfect buds and blossoms are usually rated, there is a heap of honey going to waste every day."

"Yes, Mr. Root, these beautiful specimens are really in one sense wasting their sweetness. The trouble is, the fashion nowadays is such that everybody who has a rose must have one with a long stem to it; and these long stems are worth more to us for the purpose of budding than the flowers themselves. We tried selling them with short stems; but it was not the fashion, and so we gave it up. See here. That crowd of men off there are budding roses. Before we use any of the wood we want to be sure it produces the right kind of flowers. So these blooms are really tests. When we are satisfied with the product, then we can let our men take the cuttings from the plants, you see."

May be I have not got this thing quite right, but that was my understanding of the matter. The men work along in a row side by side. Every little while one stoops down and does something to the plant at his feet. Then he rises up while he cuts the bud for setting in the next plant, and so on.

"Well, why don't these men get down on their knees, as they do in budding peach-trees?"

"Because we have found they will do more work, and do it better, by standing up."

"They do not work by the piece, then, as they do in budding peaches?"

"No, sir. The work they are doing is of too much value, and the importance is too great; for every plant must produce blossoms true to name. The men all work by the day, and they are all trained experts in the work."

Pretty soon we saw acres and acres of peach-trees. Why, it seemed as if the whole wide world could hardly use so many. My companion told me that nearly all of them were already sold at wholesale, a whole acre of trees frequently going to one man. Like the sycamore-trees, each peach-tree was exactly like its neighbor—a model of symmetry, beauty, and luxuriance. All were budded, and very plain labels that could be read at a distance proclaimed to the passerby what each tree should produce.

These beautiful grounds are mostly underdrained. We saw them doing their work as we passed by. Large quantities of stable manure are used to get the requisite fertility, and they are now getting excellent results by turning under cow peas, soja beans, rye, and various other green crops. The land is up to a high degree of fertility; and whenever a farm crop is put in to get the requisite rotation, or to produce feed for their own large numbers of horses, great crops are secured. Many of their workmen have cottages scattered over the grounds, so they will not have too great a distance to travel. In one part of the grounds I believe they have a chapel, and they endeavor to have their people attend religious worship as much as possible.

This great business has been built up by studying the real wants and needs of their customers, and not by planning to make a selfish deal every time they get an order. I have several times of late sent to Storrs & Harrison for certain things, telling them to fill the order if the plant would probably do as the catalogs claim it will; and a good many times I receive answer that they have the plant or shrub in question, and that they would be glad to sell it, but that the claims made for it are so much exaggerated they think best not to fill the order. And this reminds me that, a little over a year ago, I wrote with considerable enthusiasm about our Rocky Mountain cherry, the bush no larger than a currant, that bears great quantities of beautiful luscious cherries. Dr. Miller, in a "Straw," cautioned me in regard to writing up the plant in that manner before testing the fruit. Well, last season the frost scorched all my cherries. This year the bushes are pretty well loaded again, and the cherries are certainly as large as the morello. They look just like sweet black cherries, and have a cherry-stone inside of them; but instead of being a delicious fruit, as the catalogs claim, they are not fit to eat; in fact, they are not to be compared with the common wild cherry. They are handsome to look at, but they are neither sweet nor sour. The man who sold these bushes for 50 or 75 cts. apiece, and let his customers watch and care for them for two or three years until they came in fruiting, and then be disappointed, *ought* to fail in business; and I do not think it is very much of an excuse to say he took the word of somebody else for it. The man who puts out a catalog should grow the plant *himself* on *his own grounds* before he booms it as a great acqusition of modern times. To get out of it by saying the description he gave was put in quotation-marks, and was simply the *originator's* claim, is, in my opinion, a very poor excuse. If anybody else has a Rocky Mountain cherry that is fit for anybody to eat, I should like to hear from him. We have three bushes, and the fruit of all is just exactly alike.

Now, while Storrs & Harrison keep posted in regard to all novelties in the line of nursery stock, they will tell you the honest truth about these things, even if they fail in making a sale as a consequence of telling the truth; and the consequence of telling the truth straight for fifty years is this colossal business which they have built up. We have fruits and plants all around our home, purchased of Storrs & Harrison during the past ten or fifteen years; and every tree, as it comes into bearing, proves

to be exactly what it was bought for. We take pleasure in referring our readers to their advertisement on page 442 of our issue for June 1.

The town of Thompson, Geauga Co., O., is situated on a sandstone rock. About half a mile west of the town this rock suddenly drops down from 50 to 75 feet. At some points the drop is perhaps 100 feet. This is what is called the "Ledge." It extends north and south from five to ten miles. There is no river at the bottom of this sudden fall, as one might expect; but the valley, as it were, stretches off in a level plain miles away. A large portion of this sandstone rock on which the town is situated is composed of white sand and white gravelly pebbles the size of beans and peas. The water from the wells is pure and soft; and after every one of my wheelrides I just delighted in drinking it again and again. I spoke briefly several times on the Fourth of July; and in one of my talks I told the people that, if they had never thanked God for their beautiful pure soft water, they should commence on that Fourth of July tendering him thanksgiving and praise for this wonderful gift. Somebody told me if I wanted to take a wheelride of three or four miles out in the country I could find a soft-water spring big enough to run a gristmill winter and summer. I lost no time in making the trip, and was amply repaid. A gristmill and sawmill stand near the highway. By following the race along which the water comes perhaps half a mile back in the lots, I found the spring gushing out of several fissures between the hills. A dam has been put across so that the water that runs nights and Sundays may be stored up for use when grinding. I estimated that the stream was large enough to fill an ordinary stovepipe with a pretty good velocity; but some of the people thought my estimate of the quantity was pretty high. This, too, was beautiful soft water.

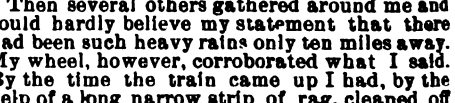
Three or four miles west of this spring I found a bee-keeper whose name was Root. I commenced to apologize for making him a visit on the Fourth of July; but when I told him who I was, you ought to have seen his face light up. I looked over his crops, saw his Thoroughbred potatoes, and pointed out to him one hill of Craigs that must have got there by some mistake. One can tell the Craig at first sight by its rank green foliage, standing up almost as straight as a cornstalk until it gets to be so tall that it topples over. Then we sampled the Red Astrachan apples, which were just getting ripe on the Fourth of July. He has one colony of bees that had gathered about 80 lbs. of honey stored in sections thus early in the season.

I was interested in a patch of artichokes—perhaps an eighth of an acre. Friend R. says they have been a success with him as feed for pigs. One of his breeding sows got her entire living from this patch of artichokes for a good many weeks. In fact, she had nothing else whatever. She not only laid on flesh, but got so fat they feared it would be detrimental to her maternal appointments; but she and the little pigs came around all right. You know I am great on having either machines or domestic animals that get along without expensive superintending. Well, pigs in artichokes will harvest the crop, prepare the ground, and do the planting for the next crop; all you have to do is to just turn them in and let them manage. Mrs. Root seemed as much pleased as her husband, and we had biscuit, butter, and honey for supper.

Monday morning I was up a little before daylight in order to catch the 6-o'clock train at Painesville, 13 miles away. A good breakfast awaited me, notwithstanding the earliness of the hour. Just as I was finishing it, and thinking what a delightful time I should have spinning through the country before it was fairly light, what should I hear on the roof but the patter of great big raindrops? As I noticed the moon shining while I was dressing I could hardly believe my ears. In a little time, however, it slacked up, and I ventured forth. I made barely one mile when more rain drove me into the coal-shed of a country schoolhouse. After a rest of twenty minutes (no refreshments) I tried it once more, and made another mile. Then I rested in a stable. Nobody was up, and the dog was inclined to think it incumbent on him to wake up his master; but after I explained to him that I was *orthodox*, and did not want to steal the pony, he seemed satisfied. Do dogs really know whether a man means mischief or is just getting in out of the rain? Painfully and laboriously I made another mile, and stopped because I saw a very neat and tidy little apiary. The owner did not appear to be very sociable so early in the morning, and did not know that he had ever heard my name. The section boxes in his corn-crib, where he stood shelling corn to feed his chickens, were of our manufacture, notwithstanding.

I pushed on through the mud. When the latter did not cling to the rubber tires until it threatened to cover even the spokes of the wheels, I got along tolerably well. Some kinds of soil will do very well to ride over just after a rain. Then there are other kinds that will not do a bit; and the two kinds may both be found in going half a mile. I wanted to make that train, and so I kept pushing ahead, getting off occasionally to roll off the load of mud by putting my thumb and finger around the rubber tire just as it rises from the ground. May be you have learned the trick. Finally the sun came out, and things began to improve. Now, would you believe it? half of my journey was done when I reached a point where it had not rained a drop, and I had a most grand ride over the beautiful graded and graveled roads that one finds within four or five miles of Painesville in almost any direction. When I was told by the ticket agent that I had 20 minutes to spare before train time he looked at my wheel and gave a "Whew!" "Why, look here; you don't mean that it has been *raining* where you came from this morning?"

Then several others gathered around me and could hardly believe my statement that there had been such heavy rains only ten miles away. My wheel, however, corroborated what I said. By the time the train came up I had, by the help of a long narrow strip of rag, cleaned off the nickel and enamel, so the wheel looked very presentable. So many other wheelmen gathered around the baggage-car that the agent said, "Look here, boys, there is such a lot of you I think I will have to ask you to lift your own wheels up into the baggage-car yourselves." We were quite glad to do this. Only two or three of the dozen wheels presented had struck the rain as well as myself.



WORMS ON SHADE-TREES AND OTHER TREES.

Ever since the leaves came out in the spring we have been rejoicing over our basswood-

trees. They were planted 18 years ago, and are now giving large yields of honey almost every season; but just after the honey-flow is gone, several kinds of caterpillars pitch in, and would entirely denude the trees of foliage if allowed to push things after their fashion. Our remedy is to get out the spray-pump that we used for spraying my fruit-trees, and give them some of the same solution—the Bordeaux mixture and Paris green. The next morning after the application is made, the worms will be sick; and by night they will be dead and dying. It is some work to sweep their filthy carcases off from the walks, but that ends the mischief. You can easily tell when they commence, if you keep an eye out for the excrement dropped on the ground, especially on the sawed flagging. When the worms are small this is just a little black powder, not much larger than gunpowder. They grow so enormously, however, that in two or three days, if not attended to, the black balls will be almost the size of peas, and at this stage the trees are injured very rapidly. I have tried dusting the foliage with the dry-powder gun, but it has not as yet succeeded as well. Perhaps if put on when the dew is on the leaves it would answer all right. But the trees are so large we should have to climb up into each one to get the dust all through the top. On this account we have used our spraying-machine, with a gas-pipe extension so as to get, say, 20 feet high. Take care of your shade-trees in front of your home, and remember that a stitch in time will save nine. This is just the time of year when these depredators may be expected.

There is another kind of caterpillar that scatters all over the branches during the day-time, but wad themselves together in a compact ball at night. If you look for them early in the morning you may find them in this compact ball, and destroy great quantities of them at once. The way I do is to dig a hole in the ground with a hoe; then clip off the branch if it is not too large, where the bundle of worms is lodged: drop them into the hole, and cover them up before they can wiggle apart. Do not let your trees be denuded of foliage after they have given you a bountiful crop of fruit. The leaves have an important work to do in preparing the tree for fruiting another season.

OUR HARVEST-APPLE TREE.

Some thirty or forty feet from our front door there is a beautiful little harvest-apple tree that has this year given us its first crop. It blossomed full, and we sprayed it, commencing when the leaves were first starting, and continuing until the apples were as large as hickorynuts. The consequence is, the tree has been decently loaded with the most beautiful, fair, perfect apples I ever saw in my life. When they were of the size of crab-apples I began to fear the tree could not perfect all of its fruit; so I drew half a one-horse wagonload of old rich compost, and covered the ground all over a little further than the branches extended; and we have had the most luscious harvest-apples that anybody ever saw—that is, in my opinion, you know. Just before getting perfectly ripe they assume a waxy whiteness and transparency that makes them look almost too good to be left alone.

Do you think I am getting a good way from my beefsteak diet? Well, I am very happy to tell you that I have been eating at least half a dozen of these luscious apples almost every day since they were ripe, and without any trouble whatever. I keep up a goodly quantity of meat, however, at each meal; then I pick my apples right from the tree, paring them carefully, and eating them very slowly. I am sure clean perfect apples picked right from the tree are more wholesome than stale fruit, or fruit that has been bruised in handling—certainly more wholesome than fruit that has been started to decay by a worm at the core. And, by the way, I have not found a single wormy apple on that whole tree. This reminds me that I have been told our good friend Prof. Cook first suggested and carried into effect the idea of spraying with Paris green to kill the codling-moth. Is it not about time that we who grow fruit should tender him a vote of thanks? A bronze monument to his memory after he is dead may be all right; but I believe he will be better pleased with just a word or two of recognition *before* he dies.

Now, if you haven't a harvest-apple tree to delight the heart of wife and children—yes, and grandchildren too—get about it and fix a place right now, and then plant one or more trees at the right season. Do not be sparing of some good compost. By the way, Mrs. Root suggested, when I was manuring the tree so liberally, that the manure might be worth more than the crop of apples. But I think she has changed her mind, for she enjoys and admires the tree as much as any one of us. She said a few days ago that not one of the apples should be sold, for the family could take care of all of them. And another thing, that half-wagonload of old manure will show its effect on the tree for a good many years to come. You can make an apple-tree boom by the same sort of care and fertilizing that you can a strawberry-plant.

ALSIKE CLOVER.

The present season of 1896 is certainly earlier than almost any record; but with the abundant rains all through the month of July, we have some unusual states of affairs. For instance, alsike clover sown last spring is now in full bloom, and stands high enough to afford a good cutting for hay. T. B. Terry told me, while I was at his home, that his medium clover had been cut once, and I saw that it was almost ready to cut again: he will probably get *three* good cuttings in all from it this season.

CRIMSON CLOVER.

Some readers may have wondered why *The Rural New-Yorker* stands by crimson clover in the face of so many reports of partial or complete failures. One reason is that we have often observed the marvelous ability of this plant to stool or spread out when once started in the spring. We have seen half a dozen fields that seemed, on April 1, to be entirely killed out, start suddenly into such a rapid growth that, by the middle of May, the ground was well covered. Last week, Mr. L. D. Gale, of Chautauqua County, N. Y., made a quite unfavorable report as to crimson clover. Here is his final report, which we print here in full, as it is in line with the position *The Rural* has often taken:

I must admit that a few straggling crimson-clover plants will make a wonderful showing if left to do their best. They can spread out equal to a bantam hen on a sitting of eggs. Where I thought there was scarcely any left, the ground is covered. It is a surprise to every one seeing the field, to know where the clover came from. May 16 I hitched up the horse and drove over to the field with Mrs. Gale; she thought the blossoms so handsome that they would add beauty to the bouquet, so we gathered some and put them with other flowers. What was our surprise to find, in four or five days, that the clover had grown so as almost to hide the other flowers! Very few honey-bees were seen at this time. A fine rain had come on the Monday following (it had been rather too dry here). I did not see the field again until May 21, five days later, when I went to the field to plow it. I was surprised again; some of it was so thick and heavy that it bothered

me to turn it under. The blossoms were alive with bees, and I almost believe that the whole working force of my 100 colonies of bees were upon the field; they fairly tumbled over each other. I never saw them thicker upon basswood bloom. After going a few times around, I stopped the teams, went to the apiary, and found the bees capping section honey. I put the teams at work in another field; and as long as it yields honey at that rate, it can stand there. I think the rain caused the flow of honey. The medium clover is keeping up. I feel certain that, where crimson has proved a failure, the medium will be a success. I do not intend to have any more bare floors in my cornfield when I can carpet them so cheaply with clover. I shall give my preference to the red clovers—crimson second place.

Our opinion is that some of our friends who plowed up the clover in disgust, a month ago, would have had a similar statement to make if they had let it alone—*Rural New-Yorker, June 6, 1896.*

CRIMSON CLOVER A SUCCESS IN INDIANA WHEN SOWN AS LATE AS THE MIDDLE OF SEPTEMBER.

We can grow the choicest crimson clover in Indiana. Sept. 18, 1895, I sowed a small patch 10 by 3½ rods. I pastured it when it was 6 in. high, and kept it pastured down all the fall, and this spring, and then left it for seed. I got 1¾ bushels of seed, and the ground is a perfect mat to-day, without plowing or harrowing, and oh how the bees work on it! They just hum from morning till night. It was in bloom 17 days. I had 9 colonies, spring count; now 14, and about 75 lbs. of honey, while most of them around here have nothing. SAMUEL RICKEL.

Akron, Ind., July 20.

The above certainly gives encouragement for sowing this plant later than we had supposed advisable. If it was pastured down during both fall and spring, then the report is still more astonishing. I can not make out whether the abundant rain caused the old stalks to send up another growth after the seed was cut and sown, or whether the seed rattled off enough to make the lot green again by the 20th of July, the day on which the letter was written.

While on the subject of crimson clover, permit me to call attention to a bulletin issued by the United States Department of Agriculture. This utters a warning to farmers and others, that it is unsafe to feed crimson clover to horses after the blossoms are matured; and still more unsafe to let them have access to the crimson-clover straw from which the seed has been thrashed. Quite a number of valuable horses have been killed by the formation of balls in the intestines. These balls proved to be made up of hairs or spines of the head of the mature plant of the clover. Where hay properly made by cutting the clover when it is just in full bloom (not later) is fed to horses, no harm results. It is only necessary to beware of letting them get hold of the overripe plant, either before or after the seed has been thrashed out.

WHY SHOULD TOMATOES ROT WHEN WE HAVE SUCH AN ABUNDANCE OF RAIN?

Mr. A. I. Root:—On my little place just outside the city, on a hilltop, I have a home. Last summer I tried to raise tomatoes. The weather was unprecedented for torrid heat, and no rainfall. As soon as the fruit reached any size, a spot of rot covered the top of the fruit until at last I became so discouraged that I gathered the green tomatoes for pickling, and pulled up the vines.

Early last spring I saw in GLEANINGS the scheme of sub-irrigation. It appeared so rational, and easy to accomplish, that I thought I had found out the cause of my previous failure. I set drain-tile, about a foot, in the soil, leaving the top some six inches above the soil. At each tile I set the plants. They have just boomed right along; and as there have been copious rains I have not had much water poured to the roots. The plants are thrifty, and the blossoms are setting rapidly into fruit.

Judge of my surprise when, looking at them this morning, I found that the blight had already attacked them. That I was greatly disappointed is putting it very mildly, and I am all at sea, not knowing who to direct me, as I failed last summer utterly to learn what was the cause of the rot.

KATHARINE ENSWORTH.

Room 220, U. S. Pat. Office, Washington, D. C.

The above letter, and samples of the tomatoes, were forwarded to our experiment station, and here is their reply:

I have examined the tomato sent, and do not find the trouble, apparently, different from the common point-rot of this fruit, which prevails more extensively under conditions of insufficient moisture. There is some of this rot, to be sure, where the conditions are not so clearly responsible; yet I can offer nothing better than the removal of the rotted tomatoes and attention to the water supply.

Wooster, O., July 22. A. D. SELBY, *Botanist.*

P. S.—A piling-up of difficulties is likely to follow by growing the same plants season after season on the same ground.

As soon as I received the tomatoes it seemed to me it was the same old trouble, familiar to most of us—rot on the blossom end; but thinking that could not be the case *this* season, I submitted it as above. I am inclined to think the trouble must have been lack of water, after all. For the past two weeks we have been having copious rains almost constantly, and I do not think we have a rotten tomato now on our whole plantation. Some of the fruit is cracking open, however, before it is fully colored. Just before the rains commenced, when our earliest tomatoes had just begun to ripen a little, we were troubled at the appearance of the rot, not only on tomatoes that were beginning to ripen, but on many of the green ones, some of them half-grown, that had a black decayed look on the blossom-end, and nowhere else. From the concluding sentence of Prof. Selby's letter we conclude tomatoes should be grown on new ground as far as possible every season; not only that, it is best to have a rotation of crops in the beds where the *plants* are grown; or have the soil all removed from the bed once in two or three years, and replaced by soil that has not been recently used for growing tomatoes.

Later.—Since the above was received we have received a second letter from Mrs. E., saying that, after the plants were supplied with plenty of water through the tiles, doing the work personally, to see that there was no mistake about it, the tomatoes are "doing finely, and no more have developed the blight." We are glad of this, because it furnishes additional evidence to show that the blight is generally if not always caused by a lack of moisture

THE OUTLOOK IN THE POTATO BUSINESS AT THE PRESENT DATE.

From the United States Crop Report for July, 1896, we gather the following: The acreage planted of Irish potatoes is 93.7 that of last year. The condition of the crop, the country over, is 99 as against 95.5 a year ago at this time. You see the acreage is almost as great, and the condition of the crop is even better. This being true, it is altogether likely that very low prices will be the rule. With the excessive rains for the past ten days, however, there is much complaint of rot, especially on ground that is not thoroughly underdrained. I tell you, it is refreshing to the grower to see the water pour forth from the outlets of the underdrains after these excessive showers. Some injury is done, of course, on grounds that are drained the very best, because the soil—especially clay soil—has been so closely packed; but if the water can all get off in an hour or two it makes a vast difference.

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OUR WET AND RAINY JULY.

Almost every season gives us some peculiarity or some new thing unlike any former season. These present closing days of the month of July, with thunder-showers almost daily, some of them almost cloud-bursts,* are novel if not refreshing in every sense of the word. Again and again have we promised ourselves that to-morrow we could get on to the grounds with the cultivator; but to-morrow brought more rain, and so the weeds as well as the crops are growing rampant. Nobody knows as yet what the effect will be, especially if it should continue on through August. We can rejoice in at least one thing—it is pushing the white clover forward in a way that has not happened before in years. My impression is, there is quite a prospect of a crop of fall honey wherever these July freshets have prevailed.

MAULE'S THOROUGHBRED POTATOES.

There were two potatoes, 33 eyes, planted in a patch with other potatoes, same cultivation, on rather thin land. Planted last of February, and dug on the 10th of July. There were 214 potatoes (57 lbs.), most of them small, but probably a dozen that would weigh from ½ to 1 lb. I am feeling pretty good over beating T. B. Terry 12 lbs. in the yield of two Thoroughbred potatoes. You will remember he grew 45 lbs. from 2 potatoes last season.

Hickman, Ky. D. W. DICKMAN.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

WANTED—HOME-GROWN CRIMSON-CLOVER SEED.

If any of our readers have harvested seed of the crimson clover, we should be glad to know how much they have and what they will take for it. The greater part of the crimson-clover seed on the market is imported. Several of the dealers are saying there is not any home-grown seed. Of course, this is not true; but they offer it as an excuse for selling the imported, which can be furnished at a much lower price. We should like to buy our seed direct from the grower, and hence this inquiry.

SEEDS THAT MAY BE PLANTED THE FIRST OF AUGUST, OFFERED AT EXCEEDINGLY LOW PRICES.

All the wax beans will usually give a nice crop for table use if planted now; and for immediate orders we offer our well-known Wardwell's Kidney Wax at 10 cts. per qt.; 60 cts. a peck. Best of All beans, green-podded, 5 cts. per qt.; 40 cts. a peck; $1.25 a bushel. We make these very low prices on the last because we have a very large stock that we do not wish to keep over. York State Marrow and Navy beans will ordinarily ripen before frost. We offer the former at 8 cts. per qt.; 50 cts. a peck; $1.50 a bushel. Navy beans, quart, 5 cts.; peck, 35 cts.; bushel, $1.25. At these last prices these beans are probably cheaper for table use than you can get them for in your own home market or almost anywhere else. We offer them thus low because we have a very large stock on hand. They are clean hand-picked beans of our own growing, and are certainly a bargain.

Sweet corn planted now will usually make green ears, and is a splendid thing for fodder if planted in hills or sown broadcast, at any time during August. In consequence of a very large stock of Stowell's Evergreen, Ford's Early, and Late Mammoth, we offer it at very low prices: viz., 40 cts. per peck, or $1.25 per bushel.

We offer the Green Prolific (or Boston pickle) cucumbers for pickles for the rest of the season, at the very low price of 25 cts per lb.

Onion seed sown now will, if the season proves to be dry, furnish nice sets; and if not sown too thick, will give small onions for market, should the season prove to be wet, as it is now, so that they do not ripen up, and the tops dry down; they will usually, in our locality, winter over in the open air, and make excellent bunching onions for next spring. Our seed is splendid stock, for it has by this time been all tested; but because we have a large stock on hand, both Globe Danvers and Red Wethersfield, we offer it, till sold out, at only 50 cts. per lb.

Onion-sets, multiplier and potato onions, radishes, spinach, and turnips, may also be sown during this month; but we can make no better prices on these than the very low rate given in our catalog. If you do not have it, we shall be pleased to mail it to you. On the Breadstone turnip that we have sold for so many years, we make a special price of 30 cts. per lb. because we have a very large stock on hand.

In regard to plants, we can still furnish late cabbage, cauliflower, and celery-plants. For prices on these, see our catalog.

In consequence of the recent very abundant rains we have a fine stock of extra nice strawberry-plants at our regular prices. Plants of the new Marshall, 10 plants for 30 cts.; by mail, 35 cts.; 100 by express, $1.50.

Maule's Early Thoroughbred potatoes and White Bliss Triumph, second crop, ready for planting now, will be furnished at the prices given in our last issue, GLEANINGS included at the rate of one year for every dollar you send us for seed potatoes of the above two varieties.

For White Multiplier and Whittaker onions, see prices given in our last issue.

SENDING US BEESWAX WITHOUT PUTTING YOUR NAME ON THE PACKAGES.

Our book-keepers, and the man who goes to the depot for packages of wax, are having no end of trouble year in and year out because people will send us wax without putting any name on the box, and a good many times without even sending us a postal card notifying us they have shipped us wax. A long time afterward they usually say something about it; but although we keep a careful record and description of every lot of wax sent us, there is all the while a perplexing jangle in regard to shipments of wax. Sometimes it takes expensive detective work—or it might almost be called that—to find out the owner. Two or three times we have paid the wrong man, and sometimes given him credit for a good deal more than he sent. I wonder if it is not the class of people who do business in this way who say that farming doesn't pay. Why, my dear friend, nothing in the world would pay if you managed in this slipshod way. When you send wax, mark your name on the box; give weight of box alone, and weight of the whole package; then send us a postal card telling us what you have done, and tell us if we shall send you cash or whether it is to be credited on account. You need not write any long letter; but do, for pity's sake, tell us who you are, where you live, how much wax you send, and what you want for it.

While I am about it, let me say again, I do not believe any of our readers or friends can afford to send beeswax by *express*. A great many times the express charge from distant points is half the value of the wax, and sometimes almost the whole value. My attention has just been called to a case where a man sent us 40 lbs. of wax by express. The charges were $2.75 for bringing it. Now, this man was not in a very *great hurry* for his money, because he waited almost a month before he told us he had sent any. The box could have come by freight for 40 or 50 cents, and there was time enough for it to make two or three trips before he ever made inquiry about it.

When you take a package to the express office, make the agent tell you what it is going to cost. In fact, I think it is a good plan to find out what it is going to cost before you make *any* investment, especially if you are working hard and find it difficult to make both ends meet, as is the case with so many just now. Please remember beeswax is coming to us all the time, and your package may come in with half a dozen others; the next train the same thing happens over again, and so on. Then the question is how we are to tell "which is which," if you do not describe your shipment nor put your name on it.

* During a tremendous rainstorm between six and seven o'clock on the afternoon of the 27th, two or three dozen little fish rained down in the northwest part of our town. They were picked up by some of our people, and are now here in the factory. They seemed to be bass, about an inch long. Our theory is that a whirlwind must have pulled the water up from some lake, and let it "spill" just in our locality; and for a few minutes it really seemed to me that it was not rain—it was water spilling somewhere from above.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS. ROOT'S GOODS AT ROOT'S PRICES.

Bee-keepers' Supplies in general, etc., etc Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

PRICES REDUCED! It is now an easy matter to improve your stock while prices are low and the honey season is on. Good queens, from the best of Italian, pure bred, stock either Leather or Golden. Your choice. My Golden Breeders show all 5-band progeny. Prices as follows: Untested, each, 75 cts.; per doz., $7.00; Tested, $1.00; per doz., $10.00; Breeders, each, $2.00. Reference, The A. I. Root Co.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Pure Cyprian Queens.

I have the only genuine pure Cyprian or Syrian bees in the U. S. so far as I know, imported direct. I have had these bees two years and find them to be the best honey-gatherers and cell-builders of any bees I ever had. I will mail you these queens from now till Nov. 15th, safe arrival and satisfaction guaranteed, at the following prices: Untested, $1.00 each, 6 for $5.50, or $9.00 per dozen. Tested queens, $2.00, or the very best breeders $5.00 each.

MRS. JENNIE ATCHLEY, Beeville, Bee Co., Texas.

QUEENS. Warranted Purely Mated.

By return mail, 50 cents.

DANIEL WURTH, Falmouth, Rush Co., Ind.

Queens! Either 3 or 5 banded, 60 cts. each; 6 for $3.00. Hives and sections very cheap. Catalog free.

CHAS. H. THIES, Steeleville, Ill.

Hardy Prolific Queens.

Gray Carniolans or Golden Italians, bred in separate apiaries. One untested queen, 65c; six for $3.50. Tested, $1.25. Select tested, $2.25. Best imported, $4.00. Never saw foul brood or bee paralysis. *Satisfaction guaranteed.* Descriptive price list free.

F. A. LOCKHART & CO., Lake George, N. Y.

Equal to X Rays.

Our strain of Italians penetrate red clover blossoms. Golden or leather colored queens, reared from the best of mothers. Untested queens, 50 cts. each. Fine tested queens, $1.00. The A. I. Root Co's Bee supplies kept in stock. 36-page catalog free.

JOHN NEBEL & SON, High Hill, Mo.

CUT PRICES.

Save money by getting our estimate on what supplies you need. Our rock-bottom prices and good goods are bringing us a flood of orders.

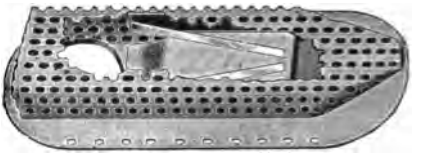
YOU SHOULD KNOW

what those prices are. Catalogue now ready. Address

JOS. NYSEWANDER, Des Moines, Iowa.

Please mention this paper.

Porter Honey-House Bee-Escape.



Have you seen it? Just the thing to put on the doors or windows of your bee-rooms. Indispensable, you'll say after you have tried it.

Price by mail, 35 cents.

Cowan and Novice Extractors.

These are the best. We are prepared to furnish on short notice, from any of our several branches, 2, 4, and 6 frame Cowans, and 2-frame Novices.

If you want the genuine, see that they bear our name.

A 36-page catalog sent free on application.

THE A. I. ROOT CO., Medina, Ohio.

BRANCH OFFICES AT

1024 Mississippi St., St. Paul, Minnesota.
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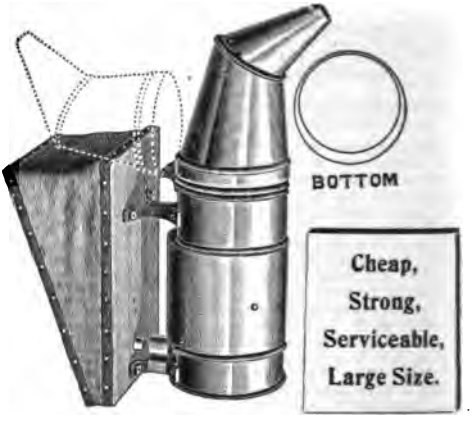
The New Corneil Smoker.



JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3¼ inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Corneil principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

The Corneil smoker is a Dandy with a big D. I have been using it to-day on the crossest colony of bees I ever saw. I think I could drive a bulldog with it. S. R. Austin.
Amityville, N. Y., Oct. 15.

Price $1.10, postpaid, or 85c if sent by express or freight with other goods.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

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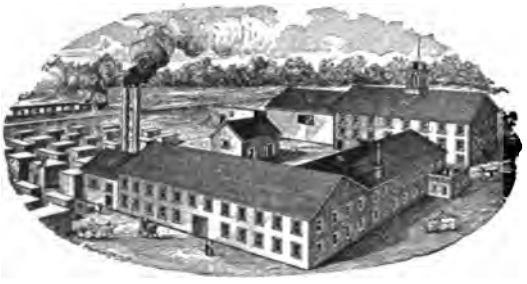
Everything of the Best at Right Prices for Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse, Rarest New, Choicest Old.

Elegant 168 page catalogue free. Send for it before buying. Half saved by dealing direct. Try it. Seeds, Plants, Bulbs, Small Trees, etc., sent by mail to any office in the U. S. postpaid. Larger by express or freight. Safe arrival and satisfaction guaranteed. **42nd Year. 1000 Acres. 29 Greenhouses.**

THE STORRS & HARRISON CO., Box 301 Painesville, O.



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We have the best equipped factory in the West. Capacity, one carload a day; and carry the largest stock and greatest variety of everything needed in the apiary, assuring **BEST** goods at **LOWEST** prices, and prompt shipment. Illustrated catalog, 80 pages, free.

Address **E. KRETCHMER, RED OAK, IOWA.**

ORIGINAL BINGHAM SMOKERS and HONEY-KNIVES, Best and Cheapest on Earth.

The Doctor, ¼ inch larger than any on the market, 3½-inch stove, per mail, $1.50.
Conqueror, 3-inch stove, by mail, $1.10.
Large, 2½-inch stove, by mail, $1.00.
Plain, 2-inch stove, by mail, 70c.
Little Wonder, 2-in. stove, weighs 10 ounces, by mail, 60c.
Bingham & Hetherington Honey-knife, 80c.

T. F. BINGHAM, Farwell, Mich.

HALF PRICE

After June 10th we sell eggs from all our yards at HALF PRICE, ($1 per 15.) Eggs will be from our best pens and handled with the same care early orders receive. Our breeds:

BARRED & WHITE PL. ROCKS, LT. BRAHMAS, LANGSHANS, BF. COCHINS, WHITE WYANDOTS, BROWN & BUFF LEGHORNS, PEKIN DUCKS.

Our stock will surely please you; order now.

POULTRY SUPPLIES

We are America's Headquarters. Biggest Stock, Lowest Prices, Quick Shipments.

NISSLY'S POULTRY ANNUAL and Catalog of "EVERYTHING FOR THE POULTRY YARD" is a book of 80 6x9 pages, finely illustrated and full of information. The book is FREE TO ALL but we request a 2c stamp for postage.

GEO. J. NISSLY, SALINE, MICH.

Queens

By Return Mail.

Special Prices For Next Thirty Days.

If you can use any don't fail to write me naming kind and number and I will surprise you on prices.

Send for 40-page illustrated catalog of full line of bee-keepers' supplies.

W. W. CARY, COLRAIN, MASS.

New Process

Weed Foundation.

Nothing like it.

Our total output so far this season is near-50,000 lbs., which is 10,000 lbs. more than the best year of the old-process foundation.

●●●●

We are receiving very flattering testimonials from the leading bee-keepers all over this country, and, in fact, of the world. Here is one that has just been received from the inventor of the Cowan extractor, editor of the *British Bee Journal*, and author of the British Bee-keeper's Guide-book—a work that has had an enormous sale, and which has been translated into French, German, Danish, Swedish, Russian, and Spanish. Mr. Cowan, under date of June 18, gives the new foundation this high encomium:

I have had an opportunity of trying the Weed foundation. I like it very much, and certainly think it is all that is represented.

Yours very truly,
THOS. WM. COWAN.

London, Eng., June 18.

And that is not all. We have sent several very large consignments of this new-process foundation to England. The British bee-keepers are demanding this article all over the British Isles, just the same as American bee-keepers are demanding the same all over the United States. Our British cousins know a good thing when they see it.

We have many other fine testimonials, but we have not room to display them here.

The A. I. Root Company,

Medina, Ohio.

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SPECIAL NOTICES from BUSINESS MANAGER

HONEY, HONEY.

Those in want of honey, either comb or extracted, will do well to write us. We have a choice stock at reasonable prices, and we desire to move it off to make room for more.

WAX MARKET.

The market price of wax grows steadily weaker, and most likely by or before Sept. 1st we shall have to make another decline in price we pay. If you have any to ship, don't hold it expecting higher prices. They are not likely to return soon. From this date we will sell foundation at 5c below catalog prices.

CLOVER HONEY WANTED.

If any of our readers have either comb or extracted honey which they know has been gathered almost entirely from clover, and are desirous of finding a market for it at a good price, we should like to hear from you. Send a sample, if extracted, in a small bottle, by mail. If comb, you can put enough in a bottle to mail to give us the flavor. Let us know how much you have, how it is put up, and what you ask for it.

CREAM SECTIONS.

These will answer well for the storage or fall honey, which is generally darker than that which is gathered early in the season. We have an overstock of cream sections, which have accumulated since the special low price on No. 1 was made. For the present we withdraw the special price on No. 1 white sections, and after this date till further notice will sell according to catalog, while we offer a special price on cream sections, to reduce present stock. 1000, $2 00; 2000, $3.80; 3000, $5.00; 5000, $8 00; 10,000, $15 00 We have plenty of standard widths, 7 to ft., 1¾, 1⅜, 1⅞, 1⅝, and 2 inch.

MASON FRUIT-JARS.

We are now in the midst of the canning season, and we have a good supply of standard Mason fruit cans with zinc porcelain-lined tops, bought when the price was much lower than it is at present. We offer this stock, while it lasts, at the following prices. All jars are packed 1 dozen in a partitioned case, without straw packing. Shipped in this way there is rarely any broken, and they are in convenient shape for storing or reshipping again when filled.

1 pint, 55c per doz.
1 quart, 60c "
½ gal., 80c "

F. O. B. cars here. No discount for any quantity, and these prices are good only so long as present stock lasts.

CONVENTION NOTICES.

Secretary Mason has sent us the following in regard to railroad rates and time of meeting:

Station B, Toledo, O., July 25, 1896.

Mr. Editor:—I have just this moment (3:20 P. M.) received the inclosed from Mr. Whitcomb; it will explain itself:

Omaha, Neb., July 22, 1896.

Mr. E. Whitcomb, Friend, Neb., *Pres. Nebraska Bee-keepers' Association.*

Dear Sir:—I beg to advise you that we have made the following arrangements for home-seekers' excursions from the Missouri River and points east thereof to points in Nebraska, Kansas, South Dakota, Wyoming, Colorado, and Utah on the following dates: Aug. 4 and 18, Sept. 1, 15, and 29, and Oct 6 and 20.

The rate will be one fare plus $2.00 for round trip, the one-fare rate to be paid at time of purchase of ticket, and the $2.00 to be paid at destination when certifying ticket for return. The tickets will bear transit limit of 15 days, in which stop-over will be allowed, and the final limit for return will be 21 days from date of sale. Tickets will be good for return, leaving destination only on Tuesday or Friday within the final limit. These tickets will be on sale at the Missouri River and points east thereof to the following territory:

To points in Kansas and Nebraska to which the rate from the nearest Missouri River is $3.00 or more.

To points in Colorado on and west of a line drawn through Leadville, Salida, and Alamosa.

To all points in Utah, except on the line of the Southern Pacific railroad.

To all points in South Dakota.

To all points in Wyoming, at and west of Moorcroft.

If you desire any further information in regard to this matter, our local railroad agent will be glad to give you same. Yours truly,

J. FRANCIS,
Gen. Pass. and Tkt. Agt., Burlington & Mo. River R. R. in Nebraska.

P. S.—Rates will probably apply from as far east as Pittsburg, Pa., and Buffalo, N. Y.

The convention of the North American Bee-keepers' Association will be held in one of the University buildings at Lincoln, Neb., Oct. 7th and 8th next, commencing at 9 o'clock A. M. of the 7th, and closing with the evening session on the 8th.

I notice that reduced rates apply only to places east of Lincoln, and not to those west or north or south. I presume that our Nebraska friends will look after this matter.

I can secure tickets here, on a few days' notice, for the round trip for $21.40 (the regular fare one way), being $2.00 less than the home-seekers' excursion rate. It will be well for those intending to attend the convention to look up the matter of rail-rates at the "cut-rate" ticket offices in their town or city near them. A. B. MASON, Sec.

The Southwestern Wisconsin Bee-keepers' Society will meet Oct. 7, 8, in Wauzeka, Wis. N. E. FRANCE, Pres.
Platteville, Wis.

The Central Texas Bee-keepers' Association meets at Cameron, Aug. 7, 8, 1896. No hotel bills to pay.
Chriesman, Tex. C. B. BANKSTON, Cor. Sec.

The annual meeting of the Southern Minnesota Bee-keepers' Association will be held at Winona on the 24th and 25th of September next, at 9 o'clock A. M. All who feel in any way interested in bees or honey are very cordially invited to attend.
Winona, Minn., July 27. E. C. COSENWELL, Sec.

The annual meeting of the Northern Illinois Bee-keepers' Association will be held at the residence of B. Kennedy, three miles northeast of New Milford, Ill., on Tuesday, Aug. 18, 1896. All are cordially invited, and I will meet any one at the train in New Milford if they will drop me a card.
New Milford, Ill., July 16. B. KENNEDY, Sec.

The Southwestern Texas Bee-keepers' Association will hold its third annual meeting at The Jennie Atchley Co.'s Live Oak Apiary, 2½ miles north of Beeville. Board and lodging free to those from a distance. The reception committee will meet all trains. Please notify the secretary if it is your intention to attend. Date, Sept. 16, 17. J. O. GRIMSLEY, Sec.
Beeville, Tex.

Warranted Purely Mated Italian Queens, From best Imported Mothers, 45 cts. each; ten for $4.00. Have had eleven years' experience with nearly two hundred colonies of bees in the production of honey. I know what good queens mean to the producer, as well as how to rear them. Queens sent by return mail. Safe delivery and satisfaction guaranteed. No disease. Please don't send stamps.

L. H. ROBEY, Worthington, W. Va.

For Sale. 4000 lbs. choice extracted basswood honey, in 60 lb. tin cans; sample for stamps. Also 50 fine tested Italian queens, 65 cts. each, and choice hound pups

ELIAS FOX, Hillsboro, Wis.

Tested Italian Queens By mail, in August, 50 cents each.
J. C. Wheeler, Plano, Ill.

Please mention this paper.

VOL. XXIV. AUGUST 15, 1896. NO. 16

GLEANINGS IN BEE CULTURE

JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS

The A. I. Root Co.
MEDINA · OHIO ·

MURRAY-HEISS CLEVELAND O

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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

Terms. $1.00 per annum: two years, $1.80; three years, $2.50; five years, $3.75, *in advance;* or two copies to one address, $1.80; three copies, $2.50; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

Discontinuances. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for, by making this request when ordering.

Terms to Agents who secure Subscriptions. Clubs to different postoffices, 90 cents each; or to the same postoffice, 75 cents each, providing that the names secured are for not less than $1.00 each, nor advertised for less than $1.00. In other words, a subscriber who, by personal solicitation, secures subscriptions in his own locality, may retain 25 cents for every name taken for $1.00; bi at least half the names so secured must be ne and cash must accompany order.

Receipts for Money. We sen no receipt for subscription money. The chang of the date on the little label shows you that the oney has been duly received and credited. During December and January it sometimes takes us thr weeks before the date is changed.

How to Send Money. You can send money at our risk by P. O. order, express money-order, or bank check or draft; and where none of these means are available, by registered letter. Money sent in any other way is at your risk. We pay no exchange or express charges on money. Be sure to sign your express money-order, or indorse your check or draft, if not made payable to the order of The A. I. Root Co. If you neglect this it will have to be sent back to you.

Our Responsibility. Although we do not hold ourselves responsible for losses that may occur in deal with our advertisers, we take every precaution to admit only responsible men in our columns.

Rates of Advertising. These will be furnished on application.

The A B C of Bee Culture.

62 Thousand Now Out.

A cyclopedia of every thing pertaining to the care of the honey-bee. By A. I. ROOT, with large additions by E. R. ROOT. This edition has been greatly revised and enlarged, so that it now contains nearly 475 double-column pages, octavo size, besides being beautifully illustrated by over 300 original engravings, many of them full page.

Prices: Neatly and strongly bound in cloth, by mail, $1.25; by express or freight with other goods, $1.10; or we w ll club it with Gleanings in Bee Culture for $2.00, postpaid.

The A. I. Root Co., Medina, Ohio.

Clubbing List.

We will send GLEANINGS with—

The American Bee Journal, weekly	($1.00)	$1.75
The Bee-Keepers' Review, monthly	(1.00)	1.75
American Bee-Keeper, monthly	(.50)	1.40
The Canadian Bee Journal, monthly	(1.00)	1.75
Progressive Bee-Keeper, monthly	(.50)	1.40
The British Bee Journal, weekly	(1.50)	2.00
All of the above journals		5.00

American Agriculturist, weekly	($1.00)	$1.90
American Gardening, weekly	(1.00)	1.75
Prairie Farmer, weekly	(1.00)	1.70
Rural New-Yorker, weekly	(1.00)	1.75
Farm Journal, monthly	(.50)	1.10
Agricultural Epitomist, monthly	(.50)	1.20
Scientific American, weekly	(3.00)	3.75
Ohio Farmer, weekly	(1.00)	1.75
Michigan Farmer, weekly	(1.00)	1.75
National Stockman & Farmer, weekly	(1.50)	2.00
Country Gentleman, weekly	(2.50)	3.00
Ladies' Home Journal, monthly	(1.00)	1.75
Sunday-School Times, weekly	(1.50)	1.75
The Golden Rule, weekly	(2.00)	2.00
Drainage and Farm Journal, monthly	(1.00)	1.75
Fanciers' Monthly	(1.00)	1.75
Market Garden and Trucker, monthly	(.50)	1.25
The Poultry World, monthly	(.50)	1.35
American Poultry Journal, monthly	(.50)	1.35
Poultry Topics, monthly	(.25)	1.15

[*Above rates include all postage in U. S. and Canada.*]

Hebblewhite & Co., George St., Sidney, New South Wales, H. L. Jones, Goodna, Queensland, and T. L. Chambers, Melbourne, Australia, will receive subscriptions for GLEANINGS at 6 shillings, postpaid, per annum.

Honey-Labels

Our facilities for doing all kinds of honey-label work in one or more colors are the best, and we can do it cheap. Send for our special label catalog of samples, free on application.

Circulars and Catalogs for Bee-keepers

is another one of our specialties. Having, as we do, the best of

Printing Facilities, Skilled Workmen,

and an enormously large collection of cuts of bee-keepers' supplies, we are in a position to do you good work and cheap. Send for our prices and samples, free on application.

The A. I. Root Co., Medina, Ohio.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

Vol. XXIV. AUG. 15, 1896. No. 16.

STRAY STRAWS FROM DR. C. C. MILLER.

DON'T TRY to scrape sections when it's so hot propolis runs. Better have it cool enough so propolis is brittle.

WOODEN SEPARATORS can be made to do service very well instead of the basket-splints used by N. T. Phelps.

DON'T LEAVE SECTIONS on the hive, when the flow stops, for the bees to daub with glue. If you hope there will be a fresh flow, wait till it comes and then put the sections on again.

WHILE THIS SEASON has been remarkably good in some places, from many others come unfavorable reports; and I doubt whether honey will rule as low as was anticipated. [Quite right. See editorials.—ED.]

YESTERDAY I passed a field of alfalfa in full bloom. Bumble-bees and other wild bees were on it, but not a hive bee. [This confirms the old statement that some of the very best honey-plants will not yield nectar some seasons or in some localities.—ED.]

CRIMSON CLOVER was coming up Aug. 1 very thick where the seed dropped on my patch sown in the spring of 1895; and I don't know that there has been a day this summer but a few blossoms could be found, although it was supposed to do its blooming last year.

IN REPLY to a question sent out by Secretary Stone, he gives in *A. B. J.* the following reports as to the prospects of the honey crop in Illinois about July 1: Very good, 2; good, 6; fair, 5; light, 1; poor, 6; very poor, 4. Balancing good against poor, there is left 4 fair and 2 very poor.

E. E. HASTY first mentioned, I think, that mixing bees inclines to swarming. It's true, with limitations. Mix bees from a dozen colonies, and introduce a queen to them, and I think they'll not swarm any sooner than if all from one colony. But throw into a colony with a laying queen some foreign bees, and they're very likely to ball the queen, start queen-cells, and then swarm.

FRIEND GETAZ explains, p. 563, that the price of honey is nearly inflexible, because "the price of honey is governed by the price of the corresponding quality of the corn syrup." But how about comb honey? Does glucose control the price of that? [That is a good point. Comb honey does not fluctuate any more than extracted. Will friend Getaz please help us out? —ED.]

BRO. BRODBECK seems to think the international Union can be made national if there is no amalgamation. Now tell us why it can not be made national *after* amalgamation. And do I understand you to say, Bro. Brodbeck, that you now want to kill the Union and get up something else? If so, just tell us what it is; and if you've got something better, I'm with you. [See editorials.—ED.]

I CARE VERY LITTLE what is done about amalgamation, the Union, or the North American; but I get weary with so much foolish talk. In one breath the plea is made to save the Union as it is, and in the next to change it to something else. Now, if there's some plan for making out of either new or old cloth just what's needed, why not tell us just what *is* wanted? [See editorials.—ED.]

MRS. SHERMAN says, in *Am. Bee J.*, that she had a ton of honey of such strong, fiery taste from milkweed it could scarcely be eaten. She put it in shallow vessels covered with cheese-cloth, and after a time the strong, peppery taste all left it. [This agrees with reports that have come in during the past, to the effect that all disagreeable or peppery or twangy honeys when new become very palatable when evaporated down.—ED.]

THOSE CALIFORNIANS have queer ways. Up where I live, when a section of honey is put on the table it's all honey with the wood removed. According to Skylark, p. 561, when a section of honey is put on his table it's *all wood!* What a digestion he must have! But that's a won-

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derful climate. [I do not understand yet how you can separate "sections from the wood." See page 561. Skylark, appears to me, has the advantage of you yet.—Ed.]

Shipping-cases. H. R. Wright gives this sententious bit of instruction, p. 569: "Don't use a case holding over 24 combs (single tier), nor less than 20 combs." No reason given why. That may be all right for Albany; elsewhere, I doubt. If I put 24 sections in a case it will be double tier in the right kind of a case, and for some markets 12 sections is a good number in a case. [In general I think H. R. Wright's advice is better. While *you* may be able to put up your honey in double-tier 24-lb. cases, the average bee-keeper will give better satisfaction in the average market by using the single-tier.—Ed.]

Since it has been demonstrated that sweet clover makes good hay and pasture, many of our farmers, instead of trying to exterminate it, as has hitherto been the custom, are encouraging its growth."—J. L. Gandy, Nebr., in *A. B. Journal*. [This is a good point. Let us keep them circulating. I expect to say, and keep on saying, until I do not have to say it any more, that sweet clover is not a noxious weed, but is one of the best honey-plants in the world; that it yields nectar everywhere, and that its flow is prolonged, not days, but weeks and weeks; that if it grows anywhere it grows in waste places; is easily exterminated; that cattle learn to eat it in preference to many other kinds of green forage, and it makes a fairly good hay. I have said these same things before; but it seems it must be repeated in different ways in order to make people believe it. —Ed.]

Now look here, Mr. Editor, none of your insinuations and wrong deductions. On p. 499 you call me the only boy that doesn't carry a knife. Nothing of the sort. I carry two—a penknife and a barlow, besides strings and other things. But did you never forget to change the contents of your pockets when you changed your trousers? The chief point, though, was that the book with scissors attached *always* goes to the apiary with me. [Yes, sir. I used to forget, many and many a time, to change the contents of my pocket—knife, strings, and other things—when I changed my trousers; but in later years I fixed this trouble by having these articles in every pair of trousers, so I am never without them. But *my* "chief point" was that very, very few bee-keepers use a book with scissors attached, and nearly all have a knife, and, therefore, knowing how to clip the queen's wing with a penknife, or even a common pocket-knife, whether sharp or dull, is a thing worth knowing.—Ed.]

Prof. Cook, in *A. B. J.*, doubts whether worker-bees ever actually kill a drone, while a writer in *British B. J.* says he has seen workers sting drones. I don't remember that I ever saw a worker sting a drone, but I've often seen them doubled up trying to sting them or else pretending to do so. Seems to me that I've seen the statement that drones couldn't live if left to feed themselves, and that when the workers stopped feeding them they starved. [I have certainly seen workers make a big show of trying to sting drones. Whether they have ever actually done so, I can not say. Bees have a fashion of making believe that they are trying to sting and scare, and I should not be surprised if Prof. Cook were right. Yes, you saw a similar statement in the A B C of Bee Culture, that drones could not live if left to themselves, and A. I. Root is authority for it. He does not say, however, that drones would starve if given access to open cells of honey, but that they would die in a clover-field when the blossoms are secreting nectar at their best.—Ed.]

My wife says I'll make a wrong impression by telling about taking five supers from one hive. Well, then, let me tell the other side of the story. I've some colonies that have given only one super. In fact, in the past two years of failure some very poor stock has worked in. But she can't stop me from adding that one colony has given 8 supers of 24 sections each—only one colony, mind you. [Tell that good woman that I do not think you gave any wrong impression, for by your language I took it that the colony referred to was your very best. If you have any other one that is ahead of that, or which has produced this year 8 supers of 24 combs, why, I feel like throwing up my hat again. During these poor years, such a feat on the part of any colony for any locality is good. The copious rains we have been having, and which seem to have been prevalent all over the country, give us hope that clover may yet regain its lost hold, and that our old-time honey crop will be known as before.—Ed.]

If supers containing some honey are put on a hive immediately after putting a swarm in it, I believe it has a tendency to make the swarm desert. Wait a day or two before putting on the supers. [The general practice on the part of those who clip their queens' wings, and catch the swarm as it returns, is to put that swarm on another stand under the same set of sections they have been working on. It is much more convenient to do the whole job at once. Mr. Vernon Burt, who comes to my mind as one who practices this plan, rarely, I believe, has a swarm that swarms again when so treated; but I can easily see that sections put over them, containing honey, take away the feeling that they have really got into new quarters. If swarms have any collective or individual idea, to the effect that they are going to the woods, or some place where there is no

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honey, comb, nor even foundation, when they are placed in a hive that has sections partly drawn out, and filled with honey, and some bees on them, and if, also, they find foundation or combs in the brood-nest, it *may* make them feel as if they had made a mistake or that they had not got to the place they desired to go to.—ED.]

SKYLARK AND BEES IN THE YEAR A. D. 3000.

I was sitting by the fire, watching the red coals running into fantastic shapes as they broke and fell apart. It was raining, and the monotonous patter on the roof would have put me to sleep if I had not been so much interested in it. This rain, thought I, means honey, if it keeps on long enough. Then my thoughts ran into the secretion of nectar, and I called to mind reading an article by a gigantic idiot, claiming that the ground had not any thing to do with the secretion of nectar—it was all in the atmosphere—it was all absorbed from the atmosphere. Why doesn't it give us nectar, then, in dry years? Why does it wait till there is plenty of water in the ground and plenty of sunshine in the sky?

Then I wandered off into clipping queens' wings, and breeding them entirely off—or breeding queens without wings (as some bee-keepers have claimed is possible), that the queen may meet the drone in confinement. Then I wandered again into a maze of fakes put forward by bee-keepers for want of something to write about.

Finally I became conscious that some one was standing beside me. I did not move till a hand touched me on the shoulder. I started up, and saw a man in light garments—a man of commanding and noble presence, and yet he was not man at all. As I looked into his face I could distinctly see and read the map on the opposite wall beyond him.

"Come," said he, in a hollow voice; "come, and I will show you the great improvements that have been made in bee-keeping during the eleven hundred years that you were asleep."

"Spirit or phantom, goblin from the nether world, do you mean to say this is not the year 1896?"

"Oh, no! this is A. D. 3000."

"Do you mean to say, then, that I went dead more than eleven hundred years ago, and didn't know it—that I was not at home at the time?"

"I know nothing of that; but I know you are almost an antediluvian in the knowledge of bees."

"You are a—a—phantom, and I can not resent your insults."

"And I come to show you what is now, and to tell you how it all came to pass."

"Phantom of the present, forgive me."

"Come, we must away."

. . . . . .

We stood together in a little yard surrounded by a fence 15 feet high, with sharp iron spikes all around the top. There were just 15 little boxes, 8 inches square, scattered over the yard, which was about 20 x 50 feet.

"This," said the stranger, "is *your* apiary."

"Apiary!" I cried; "*my* apiary!" and I kicked one of the covers off into the air. "My apiary, indeed! Why, if they were mine I would throw the whole posse of them over the fence. Fallen Babylon! rehabilitated Rome! they are nothing but bugs—they have no wings."

"Oh!" said the phantom; "no bees have wings now. You can well remember in your days, that men advocated breeding off the queen's wings, arguing that there would be no loss of queens in the wedding-flight. In the latter part of the nineteenth century—the last ten years of it—thousands turned their attention to this single object. After a tireless persistence of 200 years the object was gained. The queen never leaves her hive from the day she is hatched until the bees throw her out of the hive dead."

"Except when she swarms," said I.

"Bees don't swarm now, either. They bred that out too. But, to go on. Finally, when they had made a complete success in getting wingless queens, it became a raging fever all over the bee-keeping world. It mattered not whether a man had one hive or five hundred, he had to have wingless queens. In a hundred years after the first wingless queen was hatched, there was not in the wide bee-keeping world a queen which could fly a single yard. Then as the years went on, the wings of the bees, both drones and workers, grew shorter and shorter each generation, just as the queens' had done, until they disappeared altogether. You can still see the stump of the wings on the workers."

Then he gathered up a handful to show me.

"Have a care, spirit; they will sting you," I cried, forgetting he was only a phantom.

"But they have no stings now, either. They bred off the stings also—those mighty Solons of the 19th, 20th, and 21st centuries, who thought they knew it all."

"Phantom of the present and the past, forgive me if I seem to doubt you. Let me see a *large* apiary."

The same finger beckoned me away.

"Come and I will show you the largest apiary on the Pacific Coast."

We stood among 27 small boxes, exactly like

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the others. They were inclosed also by a high fence — all iron — with murderous spikes all along the top of it.

"Spirit," I cried, "why all these measures for defense? Has the world become so wicked in the 30th century that you have to inclose these bees within an iron wall?"

"Honey is very sweet, both to the big and the little boy. The bees can neither fly nor sting, and the boys can carry off the boxes under their arms, and hardly be noticed."

"How does all this transformation affect the honey crop? What is your average product from a single hive, of comb honey?"

"In a first-rate year we can sometimes get 20 quarter-pound sections; but it must be a real good year."

"Have sections become so small as that? Why, that's only five pounds of honey. I have produced from a single colony more than 300 pounds."

"It is not five pounds, for the ¼-pound section holds only about three ounces of honey. But there is a great difference in circumstances between your days and now. Then, bees flew at least 60 miles an hour; now, they have to crawl to the flowers. Then, the queen had the great incentive of leading out a swarm; it was her picnic, her gala day, her triumph in motherhood, and she did her level best to bring it about. She often laid 3000 eggs a day; but now 25 eggs per day is the most that any apiarist has reported for many hundreds of years."

"Then as they don't swarm you increase by dividing."

"Yes; by feeding the whole summer you can obtain one comb from each hive per month, for the queen seems to know just how many bees she wants for that hive, and she will provide no more; so increase costs a large outlay of money."

"Spirit, tell me this: Why did they wish for bees without wings?"

"They didn't wish it. It was an unforeseen result of breeding off the queens' wings. Like produces like; and a queen *without* wings could not produce bees *with* wings."

"But, spirit," I cried, as a new thought struck me, "can't *you* tell them how to breed back again to the bees we had in 1896?"

"No, it is not for me to interfere. Men were not satisfied with the bees as the great Creator had given them to us—the only creature in all his wide creation that literally worked itself to death. Oh, no! the bee as it was wouldn't do. They must go to work to improve (?) it—not only by curtailing its beautiful proportions, but by destroying its natural instincts also."

"Spirit, phantom of the past and the present, teach me—"

But he was gone, and I was still looking at the red coals running into fantastic shapes as they broke and fell apart.

BEE-KEEPING IN SOUTH AFRICA.

HOW EXTRACTED AND COMB HONEY SELL FOR 60 CTS. PER POUND; THE WONDERS OF THIS LAND AS A BEE-COUNTRY.

By Francois J. Haarhoff.

I have been an interested reader of GLEANINGS for some time now; and being a young but enthusiastic bee-keeper I thought it might be interesting to your American readers to hear a little about bee-keeping in this famous land of gold (and land of grabbing, raiding millionaires *a la* Rhodes).

Little is known or practiced in this country, of modern bee-keeping. Every careful householder, or farmer, has his one, two, or three bee-hives, but nearly always box hives. Little is known of the movable-frame hive. In the Cape Colony one or two bee-keepers have begun a small bee-farm on modern principles; and even here lately we have progressed sufficiently to have a few progressive bee-keepers having from one to half a dozen movable-frame hives. Our surveyor-general, Mr. Von Weilhjh, at one time had as many as forty hives in a bee-house; but having lately broken up his farm, this apiary has been spread far and wide, and now no larger apiary exists in this country (to my knowledge) than that of Dr. Stroud, of Pretoria, who owns some twenty or thirty hives.

Why such a state? Not because it does not pay, I can assure you; but because of there being so many other occupations that pay as well, partly, and partly because so little is known of modern bee-keeping in this country. But the example of the few is doing good work among our farmers, who are ever willing to learn any new and progressive mode of farming; and your make of hives and foundation is being sold by the leading firm in town, to a great extent.

To show how well bee-keeping pays, I must tell you first of our honey-season. Peach-blossom, which is very profuse, and productive of honey, begins toward the end of August; and from that time our honey season continues, off and on, more or less plentifully, seasons of severe drouth excepted, until the beginning or middle of May; succeeded by two or three months of mild sunny winter, during which the bees work and continue brood-rearing unceasingly—sufficiently so to keep them strong and healthy, and well supplied with food, until winter is ended.

To show you how mild our winter is, two winters ago I caught and hived a small swarm (about a quart) in June, our mid-winter month, and with a little feeding I started them to rearing brood, after which they were left to their

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own resources. The result was, a fine strong swarm in mid-summer, yielding a good amount of surplus honey. Easy enough keeping bees, is it not? Now as to the price obtainable for honey:

Strange as it may be, our woods and hills are simply swarming with bees, and yet honey brings fancy prices. I have now six colonies in full working order, and every section obtained I have sold for from two shillings to two shillings and six pence. Now, what do you Americans think of that—60 cents for a section of honey weighing from 12 to 14 oz.? I fancy I hear some bee-farmer in Ohio or California smacking his lips at such a price for comb honey. Now, I can tell you one better than that—true, mind you—(we spin no yarns in this country, except the jingo newspapers). I took out a dozen brood-frames, on the outside edge of my hives, as my bees were rather too well supplied in the brood-nest, considering the mild winter; then I had 8 frames of honey which I had placed on a hive in a super box, making 20 L. frames of solid honey. These I extracted with a Novice extractor, poured all into 1-lb. jars, and sold each jar for from 2 shillings 6 pence to 2 shillings each; that is 60 to 72 cts. per lb. for extracted honey. Good, hey?

Now let me say right here, it will do no good for any of your people taking the notion to send a few tons of honey to this country and spoiling my market — no good whatever. We have any amount of imported honey here—glucose, rather, or, at least, the public believe it to be glucose, or some imitation of honey. In fact, we have a patriotic public (a well-known fact), who believe in the purity of local production only.

I intend building a bee-house soon, and hope to be able to bring the price of honey down here by next year, by means of a plentiful supply of good local honey. The demand is so keen at present at above prices that I am almost tempted to take more honey out of the brood-nest; but better judgment has prevailed.

Should you wish to know more of our bee world, races of bees, sources of honey, mode of working, etc., I should be pleased to supplement this letter by a later one on the same subject.

Your home and health articles in GLEANINGS are most interesting as well as useful and instructive. Keep them going.

Pretoria, South African Republic, June 12.

THE HIVE QUESTION.

NOT LARGE OR SMALL HIVES, BUT MEDIUM.

By John G. Corey.

Mr. Root:—Apparently all the changes have been rung on this question that are possible; but somehow I have a desire to have my say as well as the rest of the bee-keepers scattered widely over the North American continent. With me my personal experience has been varied, extending over 35 years, and with a great variety of form and size of hives. In 1859 my first colony of bees was in a movable-comb hive 12x12x12 inside measure, containing 8 frames. I got a copy of Langstroth's book, first edition; at the same time I got my first colony of bees, and, after reading that book, I decided to change my hive and frame to conform to Mr. Langstroth's ideas, as he was the first author I had read on bee-keeping, who had had any practical experience with the handling of bees in movable-comb hives up to that date. I never owned more than one hive of the American pattern, and I used that one until I was fully satisfied.

I continued using the ten-frame L. hive until 1875, when Mr. R. Wilkin, a well-known bee-keeper, came to Ventura Co. from Ohio, bringing with him a plain style of hive holding 8 frames, L. size, also something like 100 eight-frame portico hives, made after the L. pattern, leaving off the cap, and using a plain super. These latter hives were bought of Adam Grimm, of Jefferson, Wis.; and as Mr. G. at that time was one of the foremost bee-keepers of the Northwest I decided to make my next lot of hives eight-frame, and did so; but after using them two or three years I found out my mistake. I had 200 of these eight-frame hives; but bees being in demand I soon sold all my eight-frame hives stocked with bees to parties coming into the county and commencing in the business.

In 1878, being in need of more hives, I conferred with R. Touchton, who was with me that year. He had watched with some interest the working of the two styles of hives, and we agreed that the eight-frame hive was too small; and as the hive 14 inches wide holding the 10 frames had generally but 9 combs that were perfect, almost every hive contained at least one imperfect comb; hence we decided to make the hive 13¼ wide, and use 9 frames in the base and 8 in the super, which we did; and that being a good year, we gave the new hive a thorough test, and decided in its favor. Only one change has ever been made in all these years, and that was made the next year—altering the entrance to full width of the hive, and regulating the size of the same with movable blocks. I called the new hive the "Ventura Standard." I never made any hives for sale, and never expect to; and this sketch is written only to tell the struggling bee-keeper how we arrive at conclusions. I have bought bees in hives of almost every size and shape, and made piles of kindling-wood of them after transferring them into our plain, simple, and convenient hive; but so far I never sold a colony of bees to any one, to my knowledge, who trans-

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ferred them from my hive to any new-fangled one.

In working my bees I find from 5 to 10 per cent of the colonies that fill up their supers far in advance of the average of my apiary. In cases of this kind I use these strong colonies to draw a few frames of foundation, or give them an extra super, never allowing any loafing except in the evening, after sunset. In the morning, if found clustered outside the hive, I give them ventilation or an extra super, and force them to go to work.

During the season of 1879 I had some limited experience with about 20 hives made to hold 16 frames, one story only. The bees did fully as well in these hives, the difference being only in the wide distribution of the brood, making it difficult to withdraw any great number of combs at a time for extracting, as the brood occupied only the central portion of the combs, and generally used up 11 to 12 combs. We were at that time very cautious about extracting combs containing brood, even if it was all sealed.

The great amount of fine quality of wide lumber required to make the tops and bottoms of these wide hives over the ordinary hive, together with the impossibility of being handled when full by one person, led to their abandonment at the end of that season. They were afterward partitioned off into four compartments, and used to rise queens in. This hive was called the Erie, after the celebrated New York & Erie R. R.

Not claiming to be one of the new lights, I can not expect to influence Mr. Poppleton to reduce the width of his hive, nor Mr. Dadant to reduce the size of his, and I have no desire to do so; neither do I expect to dissuade Dr. Miller from monkeying with V-shaped self-spacers; but I will say to Miss Emma Wilson, that I agree with her about heavy hives, and for that reason recommend my style of hive to any one who wishes to occupy a middle ground between the eight and ten frame advocates. We select our lumber with great care, rejecting all heavy hard boards, taking the best clear stuff always; have it planed on both sides, and sawed accurately at a planing-mill. The material for a hive, super, and frames, costs us less than $1.00, estimating lumber at $35.00 per 1000 feet. We nail them ourselves, and paint them with at least two coats, color pure white.

Santa Paula, Cal., March 6.

HOW TO AVOID BEING STUNG SO MUCH.

THE CONSEQUENCE OF TOO MANY STINGS; WEARING VEILS.

By P. D. Wine.

Mr. Root:—Why do bees sting some people more than others? Some tell me they can hive a swarm of bees, take away honey, transfer, or do any other thing necessary, and never use a veil or gloves, and never get stung. Now, I get stung every time I work with them, even with good veil and gloves on. This morning I looked into a hive having a new swarm in it, and I received six stings before I could quietly replace the cover. Is there any way to avoid stings? I am not afraid of the bees, and like to work with them; but I should prefer not to get stung every time I go near them.

Aurelia, Ia., July 25.

[I know there is a sort of current impression, to the effect that bees will sting some people more than others. While this is true, it is not because they are able to recognize any peculiar physical condition or difference, nor is it because one person smells to the bees differently from another. It is because they notice a difference in behavior in different persons. For instance, Mr. A has made a close study of the habits of bees, and particularly of the causes that induce them to sting. He recognizes that quick motions, under some circumstances, are quite liable to arouse the bees and make them sting very badly. There are certain things he can do with impunity, and others he can not; or, perhaps, we had better put it this way: He can do any thing with bees he desires; but if he works in a certain peculiar way he will get stung badly; but if his motions are regulated to their whims, he will get along with few or perhaps no stings. Another man, Mr. B, is not afraid of bees, and does not care much whether he is stung or not. Perhaps he thinks a veil useless, and does not wear one; or may be he rips the cover off with a yank. He is clumsy in his motions. One bee stings him. He draws his hand back quickly, and receives half a dozen more. He does not know the importance of doing all things decently and in order. Smoker? Oh, yes! he has one; but he uses it at the wrong time, and does not keep it on hand ready to quell any disturbance that is likely to arise. Mr. A, on the contrary, observes that bees are crosser on some days than on some others; but if he must handle them on an "off day"* he will first make sure that his smoker is in good order, and ready to give off a good volume of smoke. He will blow a little of it in at the entrance, and then pry the cover up a little very gently. As he does so he will send a stream of smoke into the crack made by the putty-knife or screw-driver. This drives down the guards, and then the crack is made a little wider, and more smoke is then driven in, when the cover is removed. If the bees show a quick nervous movement, standing up high on their legs, bobbing their bodies quickly one way and then the other, he gives them a few more light whiffs of smoke until they are subdued. With a screw-driver he loosens the frames, holding the smoker in his hand. Just as soon as the bees stick their heads up, ready to show fight, he drives them back again, and then very cautiously and deliberately removes the first frame. His movements from now on are very deliberate; and occasionally when the bees are a little obstreperous he gives them another whiff of smoke. Only a very little is required—just sufficient to let them know that he is master, and that they must let him entirely alone.

This summer I worked with the bees nearly a week before I received a single sting, and yet

*A cool day after a rain; a day when the bees have been robbing, or a day following a sudden stoppage of the honey-flow.

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one of the boys who worked near me at the time, doing the same work, was stung anywhere from three to five times a day. Perhaps some may feel that these slow movements waste a good deal of time; but I find that I can really do more work in a day by closely and carefully watching any disposition on the part of the bees to resent my intrusion. Right here rests the whole secret. To one who is accustomed to handling bees there is a certain indescribable action on their part that shows when they are ready to sting. A little smoke at the *right time* takes the "fight" all out of them.

I do not believe it is good policy for one who handles bees very much to get stung a great many times, and one should be careful to avoid every sting as much as possible. In the summer, when the bees are working in the fields, one or two stings perhaps in the whole month would be all that I should get, *providing* there were nothing but Italians from imported stock, or of that persuasion; and how I avoid the stings is simply by following the plan laid down for Mr. A.

In this connection it might be well to state that one who makes a business of keeping bees is liable in years to come to experience some bad effects from too much of the apis-mellifica poison being injected into his system. The Rev. L. L. Langstroth, James Heddon, and others in later years experienced some inconvenience from what they ascribed to the presence of too much bee-sting poison in the system.

In regard to dispensing with a veil—yes, this can be done, but it doesn't pay. I have seen some of these same chaps boast of how they did not need any face protection; yet I have seen them waste valuable time in stopping to put the hands up to the face, or plunge the head in a clump of bushes, in ignoble retreat.—ED.]

OPENING UP NEW MARKETS FOR OUR SURPLUS.

A PRACTICAL WAY SUGGESTED.

By F. A. Snell.

In years past there has been much territory in our country where bees have not been kept—some parts, at least, of which are not adapted to the keeping of bees. I have tried and succeeded very well in making sales in such territory to some extent, through friends located there. In doing so the benefit would be twofold in seasons when our crops have been good here, as then all bee-keepers have a good crop, and there is much to be sold; and if too much honey is thrown on our home or any other one market the result is a demoralized one, and low prices obtained for our honey.

The other benefit results in having an outlet for the large crop when it comes, and at good prices, besides supplying the people at distant points with nature's purest and healthiest sweet—honey.

In 1886 our crop of honey was a good one in quantity and quality. Having friends in the unoccupied fields I wrote them as to selling for me, or buying and selling it to grocers or consumers. I thus secured two good markets at good distributing-points. At one of these points my friends sold nearly 2000 lbs. of comb and extracted honey for me at satisfactory prices. At the other good point the second friend did nearly as well. Others with whom I thus arranged disposed of from 100 to 500 lbs., buying outright from me. The comb honey netted me about 15½ cts., and the extracted 9 cts., or about that. Each year since, I have sold more or less at the distant points. The only drawback has been our extremely poor seasons for the last six years, during which time I have been able to ship only small lots to the distant points, owing partially to the urgent home demand for our honey. This season thus far has been a poor one with us, and we are in much need of rain at present. Bee-keepers who make their bees their leading business should see well to it that too much honey is not forced on their home markets or the large city markets, but try to keep posted as to the honey crop, and select the not overcrowded points to sell their products in so far as is possible, using no deception in crating. Have the sections cleaned of propolis, and as little soiled as can be; thus the best prices will be secured, which are too low, like all products of labor.

At this time, and for several years past, whether the crops were light or heavy, the tendency has been gradually but surely downward, until very little or no profit is left to the producer, and sometimes the produce is sold at less than the actual cost of producing. The producer of honey, at least, should come as near to the consumer as possible, which is secured to quite an extent by selling, at points as above indicated, in vacant territory; for, were these remote points reached by our large city dealers, much expense would be added; viz., freight to city markets from the country producer hundreds of miles away, perhaps; cost of commission and transportation from city to the unoccupied markets, which would make a difference of from 2½ to 5 cts. per pound at the final selling-point, which would of necessity compel the dealer there to add this amount to the selling price; and the loss from breakage is much increased at times, all of which will add to the retail price unless the grocer loses, in which case less honey will be consumed than if sold at a lower figure, and the grocer less inclined to buy; when, if sent by the producer to the point of consumption, all parties would be helped, and far more honey used at such points; and as the extent of our country is immense, on the whole the results of bringing the producer and consumer near each other would be great, and the greatest amount of honey possible sold, resulting in a benefit to all parties interested; viz., the bee-keeper, dealer, and consumer. I think too much thought along this line can not be bestowed.

Later.—We are now having a delightful rain, which is much appreciated.

Milledgeville, Ill.

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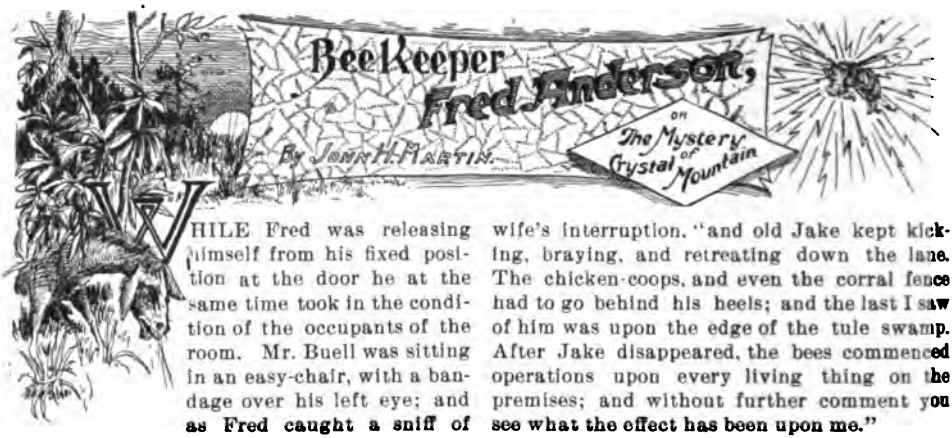

WHILE Fred was releasing himself from his fixed position at the door he at the same time took in the condition of the occupants of the room. Mr. Buell was sitting in an easy-chair, with a bandage over his left eye; and as Fred caught a sniff of hartshorn, and began to sneeze, Mrs. Buell said in an excited manner, "Just see, Fred Anderson, what those pesky bees you left here yesterday have been doing. Mr. Buell is stung so dangerously that his eye is swelled shut—shut, Mr. Anderson. Poor Alfaretta is also stung on the head, and has gone to bed weeping. And Fido, the dear little thing, I fear is dead under the barn—dead, Mr. Anderson; two hen-coops demolished, the chickens killed, and the corral near the barn ruined, Mr. Anderson, ruined."

Fred was amazed at so much damage being done by one colony of bees; and while he was trying to collect his wits, and say something, Mr. Buell laughed kindly, and said, "There, there, dear wife, don't get so excited. Fred will think those bees were equal to a cyclone."

"Cyclone!" said Mrs. Buell; "why, Clarence, they were worse—"

"You see, Fred," said Mr. Buell, interrupting his wife, "it all happened after this manner: Early in the morning I picketed old Jake on a corner of the alfalfa-field. While we were eating breakfast he slipped his rope, and, like all mules, started out upon an exploring-tour. I had just reclined in the hammock when I saw him approach the bee-hive. I have no doubt his mule sense led him to believe that he had found the box in which I keep the barley. I hastened toward him and shouted, but it was too late. With a comical leer at me and an expressive twisting of his ears, as much as to say, 'I am managing this barley-box,' he gave his nose a gyratory movement on the cover, and it went off with a thud. His nose then went gyrating among the frames; but, let me tell you, it was as quickly withdrawn, and with a snort and a squeal he whirled around and kicked that hive clear over the hedge. The pieces went flying through the air as though there had been an explosion."

"Cyclone," said Mrs. Buell.

"The whole force of bees were now getting in their work," said Mr. Buell, not noticing his wife's interruption, "and old Jake kept kicking, braying, and retreating down the lane. The chicken-coops, and even the corral fence had to go behind his heels; and the last I saw of him was upon the edge of the tule swamp. After Jake disappeared, the bees commenced operations upon every living thing on the premises; and without further comment you see what the effect has been upon me."

"Well, I declare!" said Fred, with much feeling; "in all of my experience with bees I never heard of one colony causing so much damage. Indeed, I am sorry I left them here. It is too bad, anyway;" and Fred showed real anxiety.

"Now, see here, Fred," said Mr. Buell, as he arose and walked the room," "I do not wish you to take any of the blame. I wanted the bees; and, though we have had a rough beginning with them, I shall not give up trying to manage them. If you can not save any thing out of that hive, I want another; and I tell you, Fred, I am going to stick to the bees until I know how to conquer and manage them."

Fred arose, and with animation said, "Allow me to congratulate you, Mr. Buell, upon your determination. I will give you all of the aid I possibly can."

"Clarence, are you really beside yourself?" said Mrs. Buell, in a vexed, complaining voice; "must Alfaretta and I be shut in the house all summer just by a few bees, cruel bees, mean bees? I tell you, Mr. Buell, I shall not submit to it;" and Mrs. Buell fell to sobbing hysterically.

While Mr. Buell proceeded, in the kindest of words, to allay the fears of his wife, Fred hastened out of the house, with the remark that he would try to set things to rights. "I declare," said he, in an undertone to himself, as he went into the shed to get some sacking with which to make a smudge, "I really believe Mrs. Buell is troubled with what Matt Hogan terms 'mintal aberration.'"

Fred found only the extracting-super kicked off, and that was surely ruined. There was but a small amount of bees or honey in the super, and the colony proper, or the brood-chamber, was not injured. With the smudge in hand, the cover was replaced and the colony soon regained its normal condition.

The chicken-coops were next righted and repaired; and the chickens, instead of being all killed, were coming from their hiding in the

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weeds, not much the worse for their scare; and even the corral fence was not damaged to a great extent. Fido, the supposed defunct dog, also came from his hiding, and received a caress from Fred with evident cheerfulness. Fred, thinking of Mrs. Buell's exaggerated idea of the affair, exclaimed aloud, "Mintal aberration!"

"What's that?" said Mr. Buell, who had silently come close to Fred.

"Eh—er—wh—what's that? Oh! you scared me," said Fred, as he regained his composure. "I—"

"Yes," said Mr. Buell, "I should think Jake did have a 'mintal aberration.' Ha, ha! you ought to have seen him, to realize the affair to the fullest extent."

"That's so," said Fred, with much gusto, glad to have his unguarded remark palmed off on to old Jake. "He must have appeared like a doubled and twisted syanastacutus going through the air."

Mr. Buell looked at Fred soberly a few moments and then exclaimed, "Fred, you are joking. I have made a study of paleontology, and there has never been such a prehistoric subject discovered."

"Well, now," said Fred, laughing. "I should think there is such a subject," as he pointed to old Jake, just emerging from the tule swamp, well plastered with mud.

With a few jovial remarks in relation to old Jake and his new name, Mr. Buell again put him at the end of the picket rope, where he seemed none the worse for his experience except in appearance.

Fred's offhand and rapid way of righting things, and Mr. Buell's kind treatment, diminished Mrs. Buell's fears; and when they returned to the house she had ventured to open a window and door: and when Mr. Buell again reiterated his determination to master the bees, Mrs. Buell looked upon him as a very hero. "But," said she, suddenly turning, "Fred Anderson, I should think the bees would sting you to death. I am sure if one should sting me I should not get over it in a week."

Fred told her that he had not the least fear of stings, and assured her that Mr. Buell would soon learn to manage them as easily as he could. "But before he becomes an expert he must learn to take many stings. For instance, I have been stung at the rate of forty times a minute."

"*Forty times a minute!*" exclaimed both Mr. and Mrs. Buell. "Why, Fred Anderson! what are you made of—cast iron?" said Mr. Buell. "Have you no nerves?" quoth Mrs. Buell.

"Oh! my friends," said Fred, "it is merely a case of getting the system thoroughly inoculated with bee poison; or, as a friend of mine termed it, getting pickled. The longer one manages bees the more pickled he becomes, until at length he cares not so much for a bee-sting as he does for a mosquito-bite."

"You almost discourage me," said Mr. Buell; "see my eye after only one sting. My condition would be deplorable if alive after forty stings."

"You will be so careful," said Fred, "in the first stages of your bee management, that you will receive but few stings. It is only after much manipulation of bees that one gets careless, and gets punished for it."

"Yes, Fred, I think I can imagine how that occurs. To illustrate, let me paraphrase Pope:

> A bee-hive is a monster so full of stings,
> That to leave it we'd get away on wings;
> Yet endured so oft, and stung in tender parts,
> Charmed, we fain would study all their arts.

The conversation drifted from bees to Pope, and from Pope to good and evil, and finally to the charms of music; and Fred was requested to enliven the house with the guitar and a gospel hymn. He selected "The Lord is our rock; in him we hide, a shelter in a time of storm."

Mr. and Mrs. Buell joined in the chorus; and

"JUST SEE WHAT THOSE PESKY BEES HAVE BEEN DOING!"

as the last refrain died away, an echo, as it seemed, came from the shrubbery near the house:

"Jesus is a rock in a weary land, in a weary land, a shelter in a time of storm."

Mr. and Mrs. Buell gave close and anxious attention.

"Dear Alfaretta," said Mrs. Buell, as she arose and peered from the window. "That is the first time since we came here that she has even tried to sing any thing but her song of the sea. Certainly, Clarence, it is an indication of a change."

"Surely it is," said Mr. Buell, in a hopeful tone; and, stepping to the veranda, he said, "Alfaretta, dear!"

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"Yes, papa, here I is;" and she emerged from under an acacia-tree, her face much swollen from the effects of a bee-sting.

"How do you feel, Alfaretta, since your experience with the bees?"

"Why, papa, I feel like an old potato-basket with the bottom out and handles off, all crunched, crunched."

Fred had anxiously followed Mr. Buell to the veranda; and now, turning to him, Alfaretta said, "Freddy, see my teeth." The grimace that followed gave Fred a distress in the region of the heart, and he immediately re-entered the house, followed by Mr. Buell.

The moments that followed were moments of silence. Hearts that were hoping for an improvement in the mental condition of the loved one, and anxiously watching all indications of a change, were even more sad when the indications proved to be misleading and false. The spell of silence was soon broken, however, by the well-known song from the shrubbery:

"The night is stormy and dark,
My lover is on the sea," etc.

"O Fred!" said Mr. Buell suddenly. "The episodes of the morning have led me to neglect to inform you that I have heard from Dawson. He is very bad off; has taken to his bed, and is continually raving about McBurger."

"Is that so, Mr. Buell?" asked Fred, anxiously.

"Yes. Fred, it is reliable news, for Sam Splinter came up the river from Dawson's last evening, and told me."

"Oh, dear! oh, dear!" said Fred, in evident distress. "If the man should die I should feel guilty—yes, guilty—for I suppose I am the cause of it all."

"No, Fred, I would not judge you guilty, for you were attending to your own legitimate business. He followed you for an evil purpose; and if he dies, it is only another form of retributive justice, not only for what he meditated at that time, but for past dark deeds. Now, I think, though he is a bad man, and though his wife may not receive us kindly, we can do no better service to-day than to visit those in affliction, and render all possible aid. I propose that we now eat our noonday lunch, and all go down to the Dawson place. What say you, Mrs. Buell?"

"It seems to me it is just what we should do. But, Clarence, your eye and Alfaretta's face are not very presentable."

"I think almost any thing will be presentable at the Dawson ranch," said Mr. Buell. "Etiquette and appearance are not held in high esteem there, as you will probably find out. I take it for granted you will go with us, Fred."

"Of course, Mr. Buell, I am only too anxious to be of service to those people"

"And what say you, Alfaretta?" said Mr. Buell.

Alfaretta held a small walking-stick in her hand, pointing it skyward like a wand, and, looking steadily up, she repeated, with an oscillating movement of her lithe body, and with an increasing intensity,

"Grimalkins, ghosts, grind, grind,
Bedlams and witches, bind, bind;
Hail, blinkers and winkers,
Mourning and croning,
Dawson is dead—dead."

"Dear daughter," said Mr. Buell, with evident pain, "you should not allow such vagaries to enter your head."

"Dead, dead," answered Alfaretta.

SOMETHING FOR "SKYLARK" AND THE READERS OF GLEANINGS.

Question.—Which is right, you or Skylark, as to the number of farms in the United States? Is it possible that there are 3 000.000 more farms in the country now than in 1870?

Answer.—Turning to my dictionary, under "Farm," I find this: "Land owned or occupied by a farmer." Then turning to "Farmer" I find, "A person who owns or occupies land." Then on the wall to my office I find this clipping, which I clipped some time ago from a newspaper and pinned there, and from which I made the statement regarding the number of farms, which appeared in the *Progressive Bee-keeper*, which Skylark takes exception to: "In

1870 there were 3,027,108 farmers who practically owned all the farms in the United States. In 1894 3,031,270 persons owned all the farm land in this nation." To prove himself right, Skylark will have to show that this clipping gives a false statement. Will he undertake to prove that these figures are not approximately correct? Unless he can do this he has no right to sweep me and my "argument into the Pacific." In doing as he did, he only set up a man of straw, and then proceeded to knock it down. Be fair, Skylark, even if you are hiding under a *nom de plume.*

CORPORATION, OR UNITING OF BEE-KEEPERS.

Question.—Why are you opposed to bee-keepers uniting to force up the price of honey? Is not Skylark right in his premises regarding this matter?

Answer.—I am opposed to the uniting of bee-keepers to force up the price of honey, because the *principle* is wrong. It is just this principle which has brought hard times to bee-keepers and to the mass of wealth-producing people. It is on a level with the great combines in this country, which force up prices of coal, oil, etc., to the injury of the masses, and which is condemned by all right-thinking people. Skylark says that my ideas along the line of "loving your neighbor as yourself" "leads to the legitimate conclusion that friend Doolittle should divide his honey equally among his neighbors, giving each one as much as he keeps himself." Exactly; just this. And it also means that each one of those neighbors should give me a part of their wheat, meat, butter, eggs, cotton, wool, etc., so that *all* might live in happiness on the bounties which a loving Father so richly provided for our comfort. The race in life *should* be equal to all. When I come to exchange my honey for any of the things raised in any agricultural pursuit, I find that the above is very nearly what happens, and I have not heard of any one grumbling because his honey did not buy enough wheat, corn, oats, etc.; but when we come to exchange honey for coal, fare on railroads, interest, taxes, etc., we find that it takes from three to ten times as much of our honey to secure to us the same results as it did in the seventies, and this is why so many articles have appeared of late regarding the low price of honey. And now Skylark proposes to overcome this growling by a combine of honey-producers, so as to force all of our agricultural friends to give us more of their products for ours than they have been doing, which all admit has been about right, in the past.

The papers tell us that there are 35,000,000 people in these United States without homes; that is, they live in homes owned by others; and in the face of this we are told that a honey-trust would be right, to compel these homeless ones to pay to bee-keepers a price which would grind them down still lower in the scale of society, or go without one of the most delicious sweets God ever gave to man. No, no; we have no business to go into wrong-doing because others do wrong. Besides, if we do we shall be beaten at our own game. Just think for a moment of our trying to beat, or even compete with the great oil monopoly, coal combine, or sugar trust. The distance between us would only grow broader and broader as time went on, while we should entirely take from the mouths of 35,000,000 people the sweet we are so anxious they should have.

Again, we can not combine, as bee-keepers, if we wished to trample the golden rule under our feet. I am in debt for my place, and my honey will just about pay the interest, taxes, etc., and allow my family to live on the bare necessaries of life. Interest and taxes are due. Talk about my holding my honey for higher prices, or putting it into the hands of a bee-keepers' exchange! No, I must sell that honey for what it will bring, or have the sheriff sell the place for taxes, or the landlord take it by foreclosure of mortgage, unless Skylark will advance to me on my honey enough for these and my family's living, and do the same for thousands of others. Will Skylark do this? I trow not.

Again, Skylark says, basing his ideas on the teachings of Christ in the New Testament, "In no place do I find it the duty of a merchant, though he be a Christian, to make his business known to a fellow-man who would like hints as to his success so as to put them in practice in the same business. Will Skylark tell us what these words of Christ mean, if they do not mean this? "Give to him that asketh of thee; and from him that would borrow of thee, turn not thou away." "Do good, and lend, hoping for nothing again, and your reward shall be great." "Freely ye have received, freely give." "All ye are brethren." If a man love not his brother whom he hath seen, enough to tell him of his business when he is asked about it, for fear he will enter into competition with him, how can he love God whom he hath not seen? What is the Christian bee-keeper after? As much of this world's goods as he can rob from his brother through a honey combine? If he is, then "Great is your reward in heaven" can not be applicable to him.

If merchants, and most other business men, are like those pictured by Skylark, I am happy to announce that many of our leaders in apiculture are not. Think how freely the managers of GLEANINGS have given us all the little "kinks" in our pursuit in the past; how GLEANINGS prefers the other bee-papers to itself, by retracting any thing said of them which might look as if it wished to place itself above its fellows; how it is willing to give of the knowledge possessed by its managers, on

the principle that the world is broad enough for all, even along the line of the supply business. And what I have said of GLEANINGS and its managers I find equally true of nearly all of the other bee-papers and their managers.

I should like to say many other things regarding the thoughts brought out in Skylark's article in the July 1st number of GLEANINGS, showing how he is wrong in his ideas of overproduction; what has been the real cause of the hard times to bee-keepers and in our nation; how I can not afford to attend bee-conventions as I used to, on account of having to pay three times the amount in car fare, when measured in honey, that I did in the seventies, etc.; but space will not permit, neither would all of it be appropriate for a bee-journal. The time has come for deep thought regarding the evils which have crept into our midst, and bee-keepers should lead the way toward reform by "quitting themselves like men," and by taking an advanced position by voice, by ballot, and on the printed page.

[I desire to take no sides in this discussion; but it might be well to state that a newspaper clipping, especially one that is anonymous, is not a reliable or authoritative source of information. In saying this I am not implying that the statement regarding the number of farms is or is not right. As the whole question borders closely on politics, and is out of our legitimate line, the discussion, now that both sides have been represented, should end where it is.—ED.]

BEE-MARTINS; HOW THEY ARE SOMETIMES STUNG IN THE THROAT.

Seeing an article in the *American Bee Journal* about the bee-martin, and chancing a few days later to kill a couple of these birds, I decided to hold a post-mortem examination so as to ascertain what became of the stings. The first bird dissected showed that he had eaten fifteen working bees, two of which had stung him in the throat. The other bird showed that he was more of an expert at swallowing bees; for out of twelve bees he had eaten, not one had stung him. E. L. ROGERS.

Healdsburg, Cal.

[I have always wondered whether the birds were not stung, and I am not surprised that one at least was paid back for his fun. Another query arises, whether the stings, when received in the throat or mouth, have any bad effect on his birdship.—ED.]

BASSWOOD AN ENTIRE FAILURE—WHY?

Basswood opened June 28, and blossomed more profusely than before in ten years. I was ready with 100 swarms of bees, but not one drop of honey was gathered from it. Bees did not visit the blossoms at all after their opening. The weather was all that could be asked for; but why it failed to secrete honey I do not know.

Last season, with only an occasional tree blossoming, and that very sparsely, we got a fine crop of honey, and here we are in the midst of the famous great basswood-belt of Wisconsin, obliged to report a failure with every thing apparently favorable. Why is it?

E. A. MORGAN.

Chippewa Falls, Wis., July 11.

WORKING TWO QUEENS IN ONE COLONY—CAN IT BE DONE?

Will you answer through GLEANINGS what would be the result of placing two queens in one hive, with perforated zinc in center, also on top? Would both colonies work together in super? T. N. BRIGGS.

Marion, Mass., July 30.

[The plan you speak of has been practiced to some extent. In some cases it has seemed to work satisfactorily, making apparently an increase in the strength of the colony, and in the amount of honey secured. It has been tested more fully in England, but of late I have seen but little of it. Under some circumstances it can be made to work satisfactorily—at least quite a few reported having done so in our columns some two years ago.—ED.]

ANOTHER BEE KEEPERS' CONGRESS CALLED FOR.

During the last few weeks I have been in correspondence with some of the parties connected with the Tennessee Centennial, for the purpose of ascertaining to what extent they are going to encourage an apicultural exhibit; and up to this time I am unable to give any thing definite as a result of the correspondence. However, I expect, during the coming week, to know more about what my old home State will do toward recognizing the bee and honey industry in the celebration of her one hundredth anniversary.

I am well satisfied, though, that there will be sufficient encouragement to call for a general recognition by the bee-keepers of the United States—yes, of the entire world—and the object of this communication is to suggest what I think would be a very interesting and beneficial movement on the part of combined beedom. Let's all, with one consent, pick ourselves up and hold a "National Bee-keepers' Congress" at Nashville, some time during the centennial, which opens on the first of May, 1897, and continues six months. There are matters of great importance that could be considered at such a meeting; and taking into consideration the attractions, which will be quite to the advantage of the meeting, I am of the opinion we can, between now and next summer, work up one of the greatest bee-keepers' meetings that was ever held.

Some, who are of a prejudiced turn, may say, "No, our National B. K. Union, or the North

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American, will be quite sufficient." (I speak of these two associations because they are the most extensive.) But stop and think a moment. There are thousands of bee-keepers who never attend a convention, save their own local gatherings; and then Nashville, being well located, we could get a good working force from every quarter. Such an assembly could make such demands as would be recognized by almost every State in the Union. We need laws regulating, or, rather stopping, the sale of adulterated honey. We need laws protecting, as far as possible, the honey-producing timbers of our forests, besides many others. The dairy industry is protected by the laws of our land; and why not the honey industry receive the same? Every deep thinking bee-keeper can see what power demands of such an assembly as I suggest would have; and if such be the case, why not join in a national congress, and lock arms from east to west and from north to south, and have our say? Am I right or am I wrong? It is one of the two; and if I am right, I want to see every bee-keeper on the American continent rise and second the motion.

I think I have said enough to open the subject for consideration. Now let us decide what we shall do. If my suggestion is pleasing to the bee-keepers of America, I may have some more to say a little later on.

Beeville, Tex. J. O. GRIMSLEY.

[I am quite in accord with your idea, only it strikes me it would be better to invite the Bee-keepers' Union or the North American to hold its next meeting at Nashville. The last Bee-keepers' Congress was almost a failure so far as attendance was concerned. In all probability the Bee-keepers' Union will take up the work of the old North American and of the Bee-keepers' Congresses that have been held in the past; and it does seem as if the new organization, whatever it shall be, should be the one to meet at Nashville. We are ready to receive suggestions from our readers.—ED.]

NO RAIN AND NO HONEY.

If these everlasting editors of bee-papers don't stop this present state of things I shall certainly be obliged to move to California, or do something else that's worse. The reason I want to go to California is this: Skylark lives there, and misery loves company; and he is mad, for he says so, and so am I. Well, why shouldn't we be mad? Why, it is enough to make any one fairly howl with rage to sit down and read of bees fairly reveling in sweets; glorious outlook; prospects for an immense crop never better, etc., when the fact is that neither Skylark in California nor myself down here in York State have a hand in it at all. Now, may be you editors think we don't know our business; but just give us what rain we need, and see if we can't "whoop it up" as loud as any of you; but while this dry weather lasts, and I remain in the East, just remember that you all are in a dangerous position, for you see we can just get in a cross-fire on you every time; so, beware, because we don't have to spend much of our time this year, thus far at least, in caring for the immense honey crop. Why, if Skylark and I had to eat all of my surplus ourselves it wouldn't be a big job—no, not even if he didn't eat any, for I could do it myself in a short time. But I have already occupied too much space with this strain: now for facts, which are stubborn things to deal with at times.

The bees came through the winter in extra good condition. My own (122 colonies) came out all in fine order. The weather was warm, and brood-rearing progressed rapidly, so that, by May 1, the hives were just boiling over with bees; but we had no rain to speak of, and no flow of honey to amount to any thing up to the present time, which is just after basswood has dried up. I never saw the blossoms more plentiful on the trees, but too dry to yield any thing scarcely. We still look forward to buckwheat and goldenrod and other fall flowers, which in reality are the main source from which we obtain the greatest amount of our surplus here. I do not think that we have had a rainfall of one inch in all since the snow went off; and to say that the growing crops are suffering badly is putting it very mildly indeed; and unless we get the necessary amount of rain, of course the season here will be a failure complete so far as surplus is concerned. The hay in this vicinity is less than half an average crop, while corn and oats (the latter in particular) are doing finely. Although such experiences are hard to take, yet it has not all been loss, as I have had a chance to experiment and do up a general stock of repairing, etc., which I otherwise would not have had the time to do, as I produce mostly comb honey; and, like other people's bees, mine will swarm at times when honey is coming in with a rush. T. I. DUGDALE.

West Galway, N. Y., July 18.

[The situation in our vicinity is just the opposite. The farmers have been complaining because of the excess of rains. It rains and it pours, and the ground has been so soaked that harvesting has been done under difficulties. If I am not much mistaken, all the drouth-stricken localities since the date of your letter have been blessed with plenty of rain.—ED.]

BUCKWHEAT—TWO CROPS IN A SEASON.

Buckwheat does very well here, and I will sow more extensively if I can dispose of the crop. I can raise two crops per year here, as I find by trial for two years that early sown does just as well as July sowing. I see no reason why we may not begin to sow in early spring, and continue to sow every month until July or even August, for bee pasture. My early crop filled nicely. J. S. FOWLER.

Grand View, Tenn.

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MORRISON'S NO-DRONE THEORY OF NON-SWARMIMG.

Some part of friend Morrison's theoretical speech (GLEANINGS, page 526) may be all right; but we must inform him, as well as the bee-keepers of our land, that his theory on non-swarming won't work in this part of the country. We don't wish to be understood as simply taking Mr. Morrison to task—not at all; but we mean to make this paper a medium through which the general bee-keeping interests will have protection; and when any thing is advanced that we are satisfied will not prove for the general public good, we will point it out. When this same theory was put forth by some one, in some of the bee-papers, in the year 1884, we set apart three colonies to test the matter. One Cyprian, one black, and one Italian colony were placed on full sheets of Dadant's foundation, and not allowed to raise a single drone; and just as soon as the conditions were right, here came the swarms just the same; they did not only swarm, but they second-swarmed. In latter years we have further tested this matter; and our experience is that it will not prevent swarming. It might turn out that excessive swarming would be kept down by the no-drone theory, but we doubt it. Bee-keepers that follow out Mr. Morrison's theory, on the non-swarming term, will, in our opinion, lose their time. Mr. Morrison asks the question:

"But what do we wish to copy Nature for? Our entire system of bee culture is the most unnatural thing out. People who wish to follow Nature's way had better let their bees go wild."
—*Editoral comment in the Southland Queen.*

To B. Taylor, largely, are we indebted for the advancement and advocacy of the idea of drawn combs in the comb-honey super. The fact that he had invented and offered to the public a comb-leveler greatly detracted from the rapid embracing of his theory with those to whom he was a stranger, but with those alone. Any one knowing the man must have faith in him and his theories, anyway until the complete explosion of the latter. And, let me whisper, he is now getting old enough to protect his speculations (children of his brain), and not ruthlessly throw them on the market before they can stand alone, straightway to be beheaded. In short, the cunning which cometh alone with years of experience, he possesseth. It has long been a recognized fact that more extracted honey can be produced than comb because of the bees being furnished with drawn combs. With this established, what should have been of easier deduction than that the same convenience would increase the production of comb honey proportionately? Verily, there are three degrees of intelligence—instruction, instinct, and inspiration. In treating of this subject, E. R. Root, in *Gleanings*, has the following:

* * * * * * * *

Away back in the school-readers, a certain young lady graduate, in lauding her educational attainments to the skies, concluded her performance with, "The only wonder is that *one* head can contain it all." This is the reverse of the position I occupy on this subject. The only wonder, with me, is that we have been so obtuse while these facts glared right before our very eyes. As the unfinished sections left over would be but a drop in the bucket, the general use of drawn comb in the sections would create a demand in that line; having discovered which, E. R.—rootlike—begins rooting around to fill said want, and tells us, "In the near future, from present indications, a foundation will be made having all walls and bases natural thicknesses, the walls being ⅜, ¼ inch, or deeper." Now, don't all with one accord shout, "Told you so," but do your harvests with a quiet eye, and try experimenting on a small scale and small expense. Remember the lesson of to-day's hard times is, limited expenditure. Haven't we been ridiculously slow in absorbing the principle the comb-leveler proclaimed? But now we are going to make up for lost time in the production of a walled foundation. However, the said foundation will scarcely dim the future prospects of the comb leveler, as it will pay for itself in enabling us to utilize material at hand. Aside from this consideration, how could you, E. R., make such an assertion, or, rather, prediction? Is it possible you are jealous, and seek to dim the luster of the fame of your dearest friends, Hutchinson and Rambler, both having prophesied that, there being no room or need for improvements in bee-keeping, none need be expected in the near future?—*Somnambulist in Progressive Bee-keeper.*

C. J. H., Neb.—We know of no clover that is better for general sowing along the roadsides than alsike. It grows readily, and is ornamental. Sweet clover is also good, but many people do not like the looks of it. Crimson clover, as you suggest, might grow, but it is easily winter-killed, and requires more favoring conditions than alsike. The latter will grow on yellow clay soil, as I know by experience. Next to alsike would be white Dutch.

D. H., Ohio.—There have been various machines devised for evaporating thin honey; and while some few bee-keepers have made them work successfully, and are using them now to a certain extent, the great majority find it cheaper and more satisfactory in every way to let the bees do the evaporating for them. Beginners in any case had better let evaporating-machines alone until they have acquired experience. Under "Extracted Honey," in our A B C of Bee Culture, are described the various machine evaporators. The most common way, however, when the evaporating is done artificially, is to extract the thin honey, or after it is partially ripened, and set it in shallow pans or crocks. Cover each with cheese-cloth tied around at the top, and let them stand in a hot room during the hottest days of summer, between two open windows. Another machine that is sometimes used is the Boardman solar wax-extractor. As to quality, such evaporated honey generally does not equal that ripened by the bees.

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THE failure of the California crop of honey, together with the failure in many localities in the East, will tend to make the total crop of honey not as heavy as was first expected. This should have a tendency to hold prices up.

W. Z. HUTCHINSON, in the *Review*, makes the point that "our preferences must be a choice of evils, or faults, rather." This is very true. It is true of nearly every thing we use in the apiary. If we are candid, no hive, no frame, no super, no smoker, no any thing, combines all the good features without any bad ones.

BARTELDES & Co., of Denver, Colo., a firm which sells carloads of our goods, write this in reference to size of hives: "Eight-frame hives seem to be the only kind that are selling. Ten-frame hives are moving very slowly." This is quite a pointer, especially as it comes from a State where large stories would come in play if anywhere.

I NOTICE in an "extra" of the Toronto Saturday *Globe* an interesting article written up by R. McKnight, entitled "Bees and Honey." It is written for the general public, and explains many of the secrets of bee-keeping. It is beautifully illustrated by engravings from photographs taken by Mr. W. Z. Hutchinson, some of which, or at least copies of them, appeared in the *Cosmopolitan*. Such articles as these for the public in papers of general circulation do much good in showing how honey is honestly produced.

WRITING under (or, rather, over) *noms de plume* is getting to be quite the fashion nowadays in the various bee-journals. While we may not like to have these writers hit us occasionally behind their covered-up identities, nevertheless what they say has a sort of free, racy independence (if it doesn't hit us) that is quite refreshing. None write more entertainingly than Somnambulist in the *Progresssive Bee-keeper*. He or she (methinks it is *she*) often gives new life and light, when clothed in her language, to an idea that is put forth in another journal.

RAISING QUEENS ON AN ISLAND IN CANADA.

WE learn from the Toronto *Globe* that a party consisting of Mr. Edmund Harris, President Long Point Company; R. F. Holtermann, President Ontario Bee-keepers' Association, and also an officer of the Ontario Agricultural College, and others visited Long Point the other day to inspect it as to the adaptability of the island for bee-keeping. Some forty-five colonies are being kept on the Point by the company at present as an experiment. Mr. Holtermann thought the place had great natural advantages for bee-keeping, especially after the basswood blossom opened, and suggested that the island had great advantages for the breeding of queens. It is more than likely that Mr. Harris, the President, with his well-known shrewdness and enterprise, will develop large apiaries on the island. The honey, which was sampled by those present, was pronounced first class, and it is the intention to put it on the New York, Boston, and other United States markets.

AMALGAMATION.

I AM afraid that this subject of amalgamation and reorganization will get to be so stale that some of our friends will skip the articles whenever they see this subject referred to in the headlines. But I want to say just one thing more, as the position of GLEANINGS is, perhaps, not clearly understood. It does not care whether the North American is amalgamated with the Union or not; it does not care whether either organization is national or international; but as some of our friends have objected strenuously to amalgamation, it has seemed to me that it would be better to drop that scheme and make the Union such an organization as the great mass of us desire. Again, some object to having the new organization international. Well, then I would make it national, and I am rather inclined to think that the society whose operations are confined to one country would be more easily managed, and could do more good, than one that tries to cover one or more countries and makes a poor fizzle of it after all.

Let us decide on something that will be the most acceptable to the majority. If we go to try to splitting hairs on unimportant details we shall surely get nothing. The Canadians are away ahead of us in that they have a flourishing society almost national in its character, but which really covers Ontario only. Let us on this side of the line have something big enough to cover the United States only, and one that will answer the purpose of the two existing societies. Having two, as we now do, is expensive and unnecessary while it is perfectly evident that one could do the work of the two. Personally I should be glad to see them amalgamated, providing disagreeable complications would not arise. As there is a possibility of that, I say away with amalgamation, and let the Union set about to reorganize itself as soon as it can. If for any reason it seems desirable to continue the North American, let it continue, on the principle of live and let live.

DEAD BROOD—WHAT IS IT? HOW DISTINGTISHED FROM FOUL BROOD.

I HAVE several times referred to a malady or disease that somewhat resembles foul brood, but which lacks two of the important symp-

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toms; viz., that it is not ropy, and that there is no appreciable odor of any kind. In most cases it seems to go off of itself; and very seldom does it affect more than two or three colonies in an apiary. I have one instance before me where this dead brood is spreading over the whole yard, and it may be necessary to resort to heroic measures before it can be held in subjection. Samples of the brood have been sent me, and it is neither ropy nor foul—that is, smelling like a cabinet-maker's glue-pot. The sender of this sample of brood tells me that his neighbor has the same thing.

Some speculation has been advanced, to the effect that this dead brood was owing to some sort of poison the bees get. This may or may not be true. I should be inclined to believe that it is some form of disease, and that it is, to a greater or less extent, contagious.

I have seen samples of it in our own yard at various times, but it has invariably gone off of itself, and it rarely affects more than two or three combs in the hive, and only a few scattering cells in each. It has never spread, and comes and goes.

In the case I have just referred to it has gone through the whole apiary. It has weakened the colonies, and the bees appear to be discouraged—so much so that they very soon fall victims to robbers.

I hope some scientist will take hold of this, find the microbe, and name it. In the mean time I trust that our friend, whose name I forbear mentioning, will treat these cases just as if they were cases of real foul brood, and report the result. I hesitate to mention the names of those who have diseases among their bees, without their consent, especially where the disease may be something that may easily be held under control. For instance, when foul brood has once been in an apiary, even though the last vestiges of it have not appeared for years, the mere fact that *it has been in that yard* seems to place a ban upon it for all time in the eyes of the general bee-keeping public.

THE HONEY CROP FOR 1896; PRICES, ETC.; HONEY STATISTICS CALLED FOR.

So far as we can ascertain by correspondence, the honey-flow in the Central and Northern States has been good—much better than for several years back. In the East it is not as good, and in some sections it has been almost a failure. In California there has been little or no honey except in the San Joaquin Valley, as spoken of on page 563 of our previous issue. In a letter, from B. F. Brooks, one of the leading commission men of that State, he says the California crop of honey is almost a failure.

Arkansas reports an entire failure of honey.

The report above is as definite as we can make out up to date from a large number of letters as they have come into our office. To get at it a little more exactly, I should be obliged if our readers everywhere would send in a postal card, in answer to the following questions:

1. What has been the honey crop in your locality? (Answer by saying good, fair, indifferent, poor, as the case may be.)

2. How do prices on *best qualities* of comb and extracted rule in your locality in a wholesale way?

As it takes much time to sort over all these cards, write no other information on them. For example, one card may be filled out as follows: "1, good; 2, comb, 12@14; extracted, 6@7." Bear in mind that we want your report on the *best* qualities, so far as prices are concerned. It will be easy enough to estimate second qualities if we know what the best are bringing. I hope every one of our readers will help us in getting together this information; and to be of any use it is absolutely necessary that you respond at once. If you put it off, you will forget it. If you will take the pains to answer for your own locality you may help in deciding the very important question what the price ought to be. These replies will be published as soon as received.

In addition to the replies from producers I am calling upon the honey merchants or commission men for their ideas of the season. I have already sent out the following circular letter. As soon as any considerable number of the replies are received they will be set before our readers.

Dear Sir:—Kindly answer by number, as briefly as possible, the following set of questions:

1. What style and size of shipping-case is best suited for your market?

2. What style of package for extracted honey in bulk—that is, whether square cans or barrels and kegs?

3. What weight of sections seems to sell best?

4. What time in the year do you secure the best prices?

5. What effect will the absence of California honey have on the price of Eastern honey?

6. From your receipts so far of honey, how does this season compare with that of last year?

As about 20 other commission men will report on the same set of questions, your reply will necessarily have to be brief, the whole letter not to exceed 200 words. These letters are all to be published in one or two issues of GLEANINGS. Kindly attend to this, if possible, by return mail. Your co-operation in this will be appreciated by your brother commission men as well as by the producers. We are sure it will be to your interest as well as to that of honey-producers in general.

Very truly yours,
THE A. I. ROOT CO.

Medina, O., Aug. 4, 1896.

DEATH OF ALLEN PRINGLE.

ON the 22d of July, Mr. Allen Pringle, of Selby, Ont., Canada, after suffering a short illness, died. While not a prolific writer, yet

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what Mr. Pringle did say commanded attention. The diction of his articles was beautifully smooth, and there was something in them too that reminded the reader that their author was a scholar of no mean order. A number of years ago, when bee-keepers everywhere were harrassed by the reports that were going the rounds of the daily papers, to the effect that comb honey was manufactured, and filled with glucose, nothing seemed able to stem the tide of it. Editorials in the bee-journals, protesting and denouncing it as unntrue, had little or no effect. The "Wiley lie," that gave the start to these reports, appeared originally in the *Popular Science Monthly;* and Mr. Pringle, appreciating the fact that we were fighting through the wrong channels, conceived the idea of refuting the canard right where it started. The result was, he sent an article to that monthly, denying the comb-honey yarn, and explaining how impossible it was to make it. This was given the same prominence as the original Wiley lie, and was subsequently copied widely by the general press. How much effect it had in stopping the course of this famous comb-honey canard it would be impossible to estimate at the present time.

TAKING OFF HONEY AT THE BASSWOOD YARD; THE GREAT CONVENIENCE AND ADVANTAGE OF BEE-ESCAPES.

As I have before explained, I usually have the care of this yard myself, going down on my wheel once or twice a week, as circumstances may require. Early or later in the season my visits do not, perhaps, aggregate more than once a month. But as the yard is only about two miles from our factory, by the road, it takes but a few minutes, comparatively, to go to it on the bicycle.

In taking off honey it has usually been my plan to go down a day in advance and put in bee-escapes. At our next visit our teamster starts with a wagon ten or fifteen minutes in advance of me, when I mount the wheel and usually arrive about the time he does. All we have to do is to pull off the supers that are on top of the bee-escapes and set them in the wagon, without any shaking or smoking.

This year circumstances caused us to vary the program a little. Being a little crowded with work I sent one of the boys down with the wagon to take off the honey; but as the bees were so "awful cross" that day he could do nothing with them. But he managed to slip bee-escapes under a few of the supers. On his return he reported that thieves had already been in the apiary; but, fortunately, they had not appropriated more than one section out of a super. I concluded, however, it was not wise to wait any longer, and accordingly our teamster and I made arrangements to meet at the yard. Arriving there I proceeded to take off the supers that were on top of the bee-escapes. So far all was smooth sailing, with the exception that one Porter escape was clogged with a couple of dead bees, and, as a consequence, the super was nearly full of bees that could not get out; but in every other case the Porters did nice clean work. But, unfortunately, the majority of supers had no bee-escape under them; and as I did not like to have the wagon leave without taking them I decided to go at it in the "good old-fashioned way"—smoke, brush, and shake the bees out. The Cornell smoker was fired up; and as I pulled the cover off from the first one I proceeded to smoke the bees down as much as possible into the brood-nest. This done, the super was pried off, and then I gave that super such a shaking as it never received before; but, of course, it was impossible to get all the bees out. Each super containing honey, and which I desired to remove, was treated in a like manner until all were off. In the mean time they had been placed, as fast as they had been taken off, into the wagon, and covered with bee-escapes. A few bees crawled, but still there were a good many left, and I finally decided we would take the supers home as they were, setting them in the home yard with bee-escapes on top, and letting the few straggling bees fly home as best they might among strangers.

Well, when I got through shaking the last super I was about as tired as I ever was before in all my life after two hours' work. I knew my hands hurt me while I was shaking, but that made no difference. As I looked inside of the palms I found nine blisters as the result of my vigorous shaking; and sweat? why, it just streamed from every pore. I made up my mind that *that* would be the last time I would ever attempt to get bees out of supers in the "good old-fashioned way;" that hereafter, thieves or no thieves, the bee-escape would be used.

The saving in time, the saving of blisters, and the saving of strength, to say nothing of the cruelty of using such a large quantity of smoke for driving the bees down, and the uncapping of the cells, makes the bee-escape method of removing honey *so far ahead* of the "good old way" that it seems to me any bee-keeper who thinks he can not afford to, or won't, use it is—well, I was going to say a fool; but I can hardly say that, because I know there are some very good bee-keepers who don't use an escape, and they are no fools either; but if they won't even try an escape, they are missing one of the greatest conveniences that modern bee-keeping affords.

INDEXES.

A CORRESPONDENT suggests that there is room for improvement in the indexing of the *American Bee Journal.* I have consulted the files of that periodical not a little, and rarely have trouble in finding what I want. If I could feel that our index was always as good I should feel satisfied.

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OUR HOMES.

And it shall come to pass, if thou shalt harken diligently unto the voice of the Lord thy God, to observe and do all his commandments which I command thee this day, that the Lord thy God will set thee on high above all nations of the earth: and all these blessings shall come on thee, and overtake thee, if thou shalt harken unto the voice of the Lord thy God.—DEUT. 28:1 2.

We are all of us more or less inclined to forget such promises as are to be found in the Bible like our text above. It does us good—at least it does *me* good—to read these promises over and over; and, my good friend, whenever you have time, say next Sunday afternoon, after you get home from church, I believe it will do *you* good to read that whole chapter—the 28th of Deuteronomy. How nicely the third verse comes in—"Blessed shalt thou be in the city, and blessed shalt thou be in the field!" This last verse tells us very plainly that a man may serve God in the city as well as in the country. The only important thing is, that in either case we should be hearkening diligently to the voice of God. A few days ago I told our people that I must make a trip to Lancaster, Fairfield Co., O. When some one asked what I was going there for I replied that God was calling me there. Well, how did I know that God was calling me there? how did he call? He called in this way: Near the city of Lancaster there is a campground of some note. If I am correct, it is held by the Methodists, something on the line of the campgrounds at Lakeside, which I have once or twice described. The principal reason why I felt called to go there was that, on the 30th and 31st of July, the Anti-saloon League of the State of Ohio held a meeting. The first meeting was to be held on Thursday evening, and it was to be a meeting of the Board of Trustees. As I am one of said board, naturally I was expected to be present. This Anti-saloon League is a league for the defense and protection of the boys of Ohio. Fairfield Co. is in a part of Ohio where I am comparatively little acquainted; and as I grow older I find that I feel interested more and more in every thing pertaining to our beautiful State, and especially in matters pertaining to the education and general welfare of our children.

In order to reach Lancaster by a short cut I found it expedient to ride 22 miles on my wheel This wheelride would come about in the middle of the trip. I left the train and took my wheel at New Philadelphia a little after four. I expected the roads to be bad in some places, on account of the recent rains; and I was not disappointed in this respect. Through some of the low grounds where the roads had been recently flooded, I had to walk, and sometimes carry my wheel; but when I got up on to higher ground, on the beautiful graveled road that follows along the old Ohio canal, the wheeling was beautiful, and I praised God while my wheel carried me almost noiselessly through village after village.

At one point I was interested and amused by seeing a little tent put up in a vacant lot. On it was painted in boyish letters, "Circus. Admittance 5 and 10 cts." A little further on I met a boy dressed as a clown, riding on a queer little cart or chariot, inviting people right and left to turn out and see the boys' circus. As I took in the whole situation I felt that I would give more to attend that boys' circus, *ever* so much more, than the big circuses, providing, of course, there were nothing vicious or bad about it. And I fell to wondering whether I had not been objecting too vehemently against circuses; and then I felt a wish that, if the thing were possible, there might be a circus to entertain our children, divested of its sinful features. This has often been discussed, and I have been told the experiment has been tried, but it does not pay. A few good people would give their patronage, but we are told on good authority that neither a circus nor a theater would pay expenses unless it catered to the popular demand for something that ministers to the wants of a corrupted and vicious heart. May God help not only our children but the parents as well in this matter of discriminating between innocent and pernicious amusements.

The sun was going down, and I felt anxious. The tinkle of a cycle-bell made me look around, when I saw that two boys were following me. They slackened up their pace to agree with mine, and we had a pleasant chat by the way. I had been afraid that rain would interfere with my meeting my appointment; and when it began to sprinkle we all began to quicken our speed. To add to our perplexity, the canal had got over its banks, and flooded the road for a little way. Even though it rained, there was no other way than to wade through the water, carrying our wheels and shoes and stockings. I expected to stop over night at Newcomerstown, with the friends who were pictured on page 544; but the rain and the darkness together, with the fatigue of going over rough roads, obliged me to stop with my boyish comrades at the pleasant town of Port Washington. The evening was exceedingly warm, and the people seemed to have gathered mostly on the lawns in front of their homes—that is, after the little shower had slackened up. They were nice-looking people; the homes were neat and tidy; the beautiful lawns in front, that reached clear down to the street, have a very pretty effect indeed; and I made up my mind that the people of Port Washington must be temperate and God-fearing. The words of our text are true, dear reader. There can be no real comfort and enjoymen and neatness and thrift without godliness.

I was warmly welcomed next morning by friend Nicodemus and his family. In fact, they had watched and waited the night before, and had kept a lantern burning out on a post, so that I might find their house with but little trouble, if I came in after dark Newcomerstown, like other towns in that vicinity, is sadly in need of thorough and efficient temperance work; and while I write, our Anti-saloon League is, if I am correct, carrying on a crusade in their midst.

I reached Lancaster in due time, and it was almost a reunion to shake hands once more with my comrades in the crusade. Our Board of Trustees does not include a very large number, it is true; but I assure you it was a rare pleasure to meet with the good and pure men of the State of Ohio, who feel as I do, that God calls them to thus meet twice a year to consider the problems that lie before us One of our number was the author of some of our valuable schoolbooks; and, dear reader it is not only the churches of Ohio that are working and praying for the abolition of the saloon system, but I believe our *teachers*, if not *all* of the pupils, are also hungering and thirsting for the time when saloons shall be gone. The church and the saloon can not flourish together. They are mutually antagonistic in every way. When I say this I recognize that among the readers of GLEANINGS are not only many who patronize the saloon, but there are also some saloon-keepers; but, dear brothers, please remember that it is not the *men* so much as it is the *business*

that we are fighting. One of the speakers made the remark that our churches, Sunday-schools, and Endeavor societies, and other religious organizations, could not thrive and prosper if they confined their work *solely* to "peace on earth, good will to men." In olden times there were battles to fight, and the *Christian* was by no means exempt from duty of this kind. Watts, in one of his old hymns, says:

> Are there no foes for me to face?
> Must I not stem the flood?
> Is this vile world a friend to grace,
> To help me on to God?
>
> Sure I must fight if I would reign,
> Increase my courage, Lord:
> I'll bear the toil, endure the pain,
> Supported by thy word.

And it is just as true to day as it was then. The church or the Endeavor society that sees no foes to fight can not very long amount to much. A visit to almost any of our towns in Southern Ohio will show us the foe.

The Ohio Anti-saloon League has collected and expended during the year, in round numbers, $25,000. I was greatly interested in the way the money had been used, and so I asked some questions. I am sure it has been well invested. According to my judgment the salaries paid are very fair and proper for the amount of service rendered. I do not know but some of the good brethren thought I was needlessly inquisitive; but as I have been frequently asked what they did with the money, I wanted to be able to answer understandingly. Every county in our State has made some contribution; but from some the amount has been very small. Quite a large number of counties have contributed from $100 to $500; but the greater part have given less than $100.

May I tell you briefly what our League has accomplished? Well, we have held our ground and done something more. You may, perhaps, know that almost every temperance law that has been passed in our State has been repealed or so modified as to be of little account shortly after its passage. Who did it? Why, those who wanted to make money out of our boys, and who did not care a fig whether they went down to ruin or not. Only a short time ago we had a very good law against the sale of cigarettes—or, if you choose, cigarettes to school-children. It was repealed in a very short time, or modified so as to be of but little account. Why was this done? Because it blocked the enormous trade that had been growing up in cigarettes. Ministers, teachers in our schools, mothers, and all good people, gave abundant evidence that the cigarette was worse than poison. It kills soul and body. But it hindered *trade*. It is the Ohio Whisky League that is busy with its millions of money in repealing our temperance laws as fast as we can make them. The law against permitting boys under age to enter saloons has been a grievous one to the brewers and saloon-keepers; and, if I am correct, it would have been repealed long ago had it not been for the efforts of temperance people to the contrary. Of course, I do not mean to say that the Anti-saloon League has been doing *all* of the temperance work. God forbid that I should get any such idea into my head. The meeting on the evening of July 30 was a private one of only a few people. The one the day after, at the Lancaster camp-meeting grounds, was a public meeting; and among the speakers were some of the best in the State or in any other State. Hon. S. E. Nicholson, of Indiana, the originator of the famous Nicholson Bill, gave us a talk that ought to be given throughout the United States. By the aid of this bill of his framing, 700 saloons have been closed in Indiana during the past year. He is not only a temperance man and a devout Christian, but he is a *fearless* man. It makes one think of Parkhurst and Roosevelt, of New York, to hear him talk. A great many politicians are fearful that they will not be elected if they come out fair and square against the saloon, or if they have the courage to advise the prompt enforcement of our laws. Mr. N. has not lacked support, by any means, and his experience verifies the promise that godliness *is* profitable.

Let me add just a word in regard to this Lancaster camp-meeting ground. The city of Lancaster is by no means a temperance town. At the meeting of our Board, a gentleman remarked to me that some years ago he was called upon to give a temperance talk at the county fair at Lancaster; but there was not very much enthusiasm on temperance among the crowd that attended the fair. In the first place, there are over 70 saloons in a town of scarcely 7000 inhabitants. Second, they were selling beer on the fairgrounds to such an extent that they finally moved the stuff out of one of the halls, and gave the whole great building to the use of the beer-sellers. No wonder they could not listen to a temperance lecture.

Now, then, for the campground. I am told the present is the 24th annual meeting on these grounds. Very pretty and substantial cottages have been put up; in fact, the architecture is so tasty and unique than one can spend an hour very profitably passing along the streets and viewing the comfortable summer homes. Like the campground at Lakeside, one never hears an oath, and he is never offended by the smoke of a cigar or cigarette—at least. I did not hear or see any thing of that sort. Everybody you meet is not only bright and intelligent, but looks like a Christian and acts like a Christian. Why, the contrast in going through the crowds of men, women, and children, on this ground, between that of the crowds found in the average city around the railway depots, or even on our county fairgrounds, is just wonderful. It makes me think again and again of that beautiful text:

> ☐And there shall in no wise enter into it any thing that defileth, neither whatsoever worked abomination, or maketh a lie; but they which are written in the Lamb's book of life.—Rev. 21:27.

Hon. Joshua Levering, presidential nominee of the Prohibition party, said in reply to a reporter: "Our object is simply to close up the saloons, and not to interfere with what a man drinks in his own house. Nearly all the crime in this country, directly or indirectly, is traceable to the saloons." He said further, that the reason of all the troubles in our fair land to-day is "not over-production but under-consumption;" and adds that the prime reason of this under-consumption of the necessaries and luxuries is to be found in the waste caused by the liquor habit. We take the above from the Chicago *Advance* of Aug. 6.

I have spoken elsewhere about leaving the train and taking my wheel at New Philadelphia. The first man I inquired of told me that the distance to Newcomerstown was 27 miles. The next man said it was 18 miles, which was exactly right, in a *straight line*. When about

half a mile out of town, however, I found a guideboard that said 22 miles; and right here I had my first evidence of the practical value of a cyclometer. Just a few days ago the boys attached one to my wheel, so as to see how much I covered in running around town and through the gardens in the course of 24 hours. I was greatly astonished to find that some days I make from five to ten miles just running around home. Well, until now I have always had an opinion that a cyclometer was more of a plaything than a thing of any real practical value. When the guideboard told me 22 miles I looked to see where the cyclometer stood, and then I was master of the situation. By glancing at it at any point on the route I could tell just how far along I was. I still kept asking people, however, when opportunity offered, just to test, not the cyclometer, but the average person. When you ask about something only four or five miles away, he is tolerably accurate; when you get up to ten miles he is a good deal confused, and at twenty miles he has only a dim idea of things—that is, generally speaking. But, didn't I rejoice when I reached the upland, and got on to the graveled pike along the canal! It is not only the gravel that makes these main turnpikes so nice, but it is the fact that the hills are graded down so it is an easy matter to run up any of them without slacking your speed to any extent; and it is also an easy matter to run down, even if you have no brake on your wheel. When you get away from the pikes, however, on the country roads of Central and Southern Ohio, as a rule you have to work up the hills; and without a brake on your wheel you will also have to walk down a great many of them. Some of the points are beautiful and romantic. More than once a line of an old song that I heard in my childhood came to mind:

And we'll settle on the banks of the pleasant O-hi-o.

One thing that made the trip pleasant to me was the luxuriant gardens and the amount of fruit that grace the roadside, especially where the road passes over a hill. The peach-trees everywhere were bending and breaking down with their loads of fruit. At friend Nicodemus' we found beautiful peaches in the grocery at only 15 cts. a peck. Before I went away, I found an old farmer who was anxious to bring me a wagonload, or several of them, at only 40 cts. a bushel; and these were good-sized, fine-looking peaches at that. At our home in Medina they were retailing at 50 cts. a peck. I figured on getting some of them by express. But they would have to go over two lines; there was a chance of delay at the transfer; baskets must be bought, and tarleton or some substitute would have to be fastened over the baskets to prevent pilfering; and I was sorry to have to give it up, because the different expenses would bring them up so high that it might not pay, especially if we should have very hot weather during transit. Let me pause a little to suggest that there is still a wrong somewhere.

Before I reached home I stopped for breakfast at a little inland town, ten miles from any railroad, where they wanted me to agree to take their peaches at 10 cts. a bushel—after the late ones were ripe. This is not a new thing. Almost every year in Southern Ohio peaches are sold for 25 cts. a bushel at inland towns; and at this time, only a hundred miles away, or less, they sell for from one to two dollars a bushel. Several times I have tried to make arrangements to benefit both producer and consumer, but I have had to give it up. Let me tell you one of the drawbacks. While off on this trip I repeatedly saw boys and loafers around the railroad stations grabbing peaches out of the baskets. Friend Nicodemus told me they had it at their station almost every day. Said I:

"Why, friend N., is it possible that your express agent can see this thing going on, and not do any thing about it?"

"Why, Mr. Root, *his own boy* was doing the same thing, and setting the example for the other boys."

Where peaches are only ten or fifteen cents a peck, perhaps they think this is a small matter, and that it is not worth making a fuss about; but when I pay a dollar a bushel for peaches, and get scant-measure baskets at that, it makes me feel like fighting to see that more or less fruit has been abstracted from each scant basket. If any express agent sees this, I hope he will make a move for reform in this matter of pilfering fruit.

Friend Nicodemus has certainly a wonderful show of vegetables in almost every line. Why, he had Surehead cabbage almost as large as a bushel basket. In their own town every thing goes by so much apiece. He says he can not sell any thing by weight at all, so these great cabbage-heads have to be retailed for a nickel apiece—just the same price as those that weigh only three or four pounds. He said what troubled him just then was the fear that he might not be able to get even a nickel apiece for all he was going to have. Beets, cucumbers, etc., sold for 10 cts. a dozen or a penny apiece. Monstrous heads of cauliflower brought only a nickel. My impression is that he, like other expert market-gardeners, would probably make more money during a drouth than during this season of abundant rain. Although he had plenty of almost every thing, he happened to be out of green corn. I think I never knew a season yet out that some one or more commodities would be out, and a good price offered for the lucky man who had a supply. His soil is a beautiful loam close to the Tuscarawas River. By the way, said river, during my visit, was on a rampage, and it made my heart sad to see whole fields of corn not only knee-deep in standing water, but in some places just the tassels were sticking out. The people along my route told me they had had a thunder-shower every afternoon regularly.

I was greatly interested in Newcomerstown in going through the immense establishment of James B. Clow & Sons, their business being mainly manufacturing cast-iron water-pipes. What pleased me especially was to see a manufacturing plant employing two hundred or three hundred hands, where power is transmitted entirely by electricity. My friend secured a permit from the office, and we were first ushered into the power-building. A beautiful steam-engine was propelling a power dynamo. Now, although this dynamo was not much larger than an ordinary cooking-range, the man in charge informed us that it produced 250 horse-power. A needle on a dial close by the dynamo told every instant just how many horse-power were being used. Sometimes a piece of ponderous machinery would be suddenly stopped, and the needle would drop back instantly; then some other machine would be started, or perhaps three or four at once, and the magic needle would spring forward to indicate the amount of power suddenly called for. By an ingenious piece of mechanism, steam from the range of boilers was turned on or off in proportion to the power required. Every thing was so still that one could hardly believe that such a tremendous force was passing out through the medium of those little copper wires. But if you listened intently near the cylinder of the engine you could hear the opening and closing

of the ports, as the necessity of the case demanded, to admit or cut off steam

Then we visited the different buildings where power was being used. A little bit of electric motor, shut up in a closet or box, propels ponderous machinery. It seems almost incredible that such trifling and diminutive pieces of machinery could move a great wide belt of heavy leather with such irresistible power. You see, the idea here is, instead of the old-fashioned way of great long shafting and belting, just a little copper wire carries the amount of force needed. Our readers who visited the World's Fair, perhaps noticed great hoisting machinery that moved overhead on a suitable carriage. Well, the electric motor is located at one end of these movable carriages, and a trained man or boy sits by it and moves simple little levers, much as the motorman uses on the street cars as he throws on and off the electric current. Iron pipes, glowing redhot, large enough for a child to walk through standing erect, are handled by these hoisting-engines as easily and as silently as a child would swing an apple by the stem. I suggested that this work was dangerous to life and limb, even with the best trained experts, to handle the lever. The day after my visit, by the breaking of a chain one poor man was both crushed and blistered by one of these great redhot iron pipes. Was there ever a time in the history of the world when careful and skilled men and women were more needed than now? It seemed to me as I looked on, that, if I were one of those workmen, I should want to be sure that the one who is intrusted with this mighty power should be a devoted Christian. He should be a man who loves his neighbor as himself, in the truest sense of the word—one who would work as carefully and faithfully as if the busy crowd below were each and every one *his own child*. I was pleased to see cooling streams of beautiful pure water all through this great plant. The men who handled the melted iron were, many of them, naked to the waist, and once in a while they would take off their "sweaters"—at least that is what I should call them—and wring out the perspiration, and cool off the garment under one of the steady streams of pure cold water. Every thing is handled with such accuracy and precision, and every thing is kept so neat and tidy throughout the whole plant, that I am told that accidents are *comparatively* rare. Notwithstanding the intense heat at many points, and the laborious work, the utmost good nature seemed to prevail all around among the workmen. Even though the 30th of July was an exceedingly warm day, they all seemed to be bright and happy.

Some time in April, as soon as we could get a piece of ground dry enough, we planted extra early sweet corn, wax beans, shell beans, and early peas. We usually put in all these things early, thinking we shall be so much ahead if the frost does not catch them. If it does, then we can plant over. With the view of planting a second crop between, we put the rows rather farther apart than usual. The frost did not catch them, so we secured a good crop of all, if we except the early sweet corn, which was pretty badly used up by the cut-worms. After the crops had got pretty well along we gave them an extra good hoeing and cultivating; then with our marker and furrower we made a deep furrow between every two rows. We made this as deep as we could and not injure the beans, corn, and peas by hilling them up too much. Then we planted Craig potatoes in the furrows The covering had to be done partly with the cultivator and partly by hand; but it enabled us to double-crop the land. The Craig potatoes came up promptly, and for a time we feared they were going to crowd the other stuff; but with the abundant rains they all made an excellent growth. With the tops of the Craig potatoes, and the first crop too, the ground was fully occupied, so there was hardly a chance for a weed to come up. Some weeds did get in, however, especially where the corn was missing on account of the cut-worms, and of course no cultivating with the horse could be done until the early crops were gathered and out of the way. By this time the Craig vines were so rank and long that we had to throw them over to one side with the hoe-handle, so as to get the horse and cultivator through. In this way we gave the whole patch one good cultivating, hoed and pulled by hand all the weeds that got in, then spread the tops back again. The prospect is now that we shall have two good paying crops on the same ground, and for several weeks both crops occupied the ground at the same time. Of course, this makes more work, and necessarily some hand work; but with very rich high-priced ground close to market I think it will pay.

ADULTERATION OF SEEDS.

Mr. J. S. Johnson, of Kyneton, Australia, sends us in a letter a newspaper clipping, which we take pleasure in giving below:

A bill introduced by Mr. Frank Madden, M. L. A., to prevent the adulteration of seeds, and to regulate the sale thereof, has been circulated. It states that any person who with intent to defraud "kills" seeds by artificial means so as to destroy their germinating power, or dyes seeds by any process of coloring, dyeing, or sulphur smoking, or sells any such killed or dyed seeds, shall be liable to a fine of £5 for the first offense, and to one of £50 for the second, and to have his name published, together with the particulars of his offense, at his expense. The bill further provides that "on the trial of any such offense it shall not be necessary to prove an intent to defraud any particular person; it shall be sufficient, to prove that the person accused did the act charged with an intent to defraud." Persons making unreasonable complaints against seedsmen will be liable to pay the costs of the legal proceedings.

I have long been aware that the seeds of commerce are more or less "doctored" by the plans outlined above. Let me explain a little. We used to have a black wax snap bean that we thought a good deal of; but I noticed almost every year that there would be more or less bogus plants among the others. These bogus plants produced a dry-shelled bean looking just exactly like the others; but they had a green pod, and were not a wax bean at all. Now, in this case had the spurious seeds got in accidentally, or was it because the grower was not careful enough to weed out the spurious plants? But years when the seed was very scarce and high-priced, we found more and *more* of these spurious plants. The customer who purchased them complained, sooner or later, as a matter of course; therefore it became an advantage to kill the vitality of the spurious cheap bean, so that the beans not only looked all right when planted, but looked all right when the crop came up, only it took a good deal more seed to plant a given length of row. Stratagem peas have always been scarce and high-priced; but the dry peas themselves

look so much like the Champion of England that it would take a very keen and practiced eye to tell the difference when they were in the seed-bag; but when the gardener found about half of his Stratagems were the Champion of England, he realized how he had been swindled. If he wanted his peas for table use, it did not make so very much difference; but if he wanted to grow seed himself, so as to have the pure genuine Stratagem, he must hand-pick and sort out the Stratagems from the comparatively cheap and common Champion. In this case, as in the other, if the dealer could kill the vitality of the Champion, then the gardener would not know the difference unless he planted a certain number of seed, say 100, and then counted the plants as they came up.

Now, dear friends, I should be glad to say that there is one seedsman in the United States who furnishes seeds that are always true to name, without any such doctoring and swindling about any thing he sells; but I do not know any such seedsman in the *whole wide world*. There may be one, but I have not found him. One might come pretty near it, if it were possible for him to grow all the seeds himself. We have for many years grown a few of our own seeds, in order to know exactly what we had; but when a seed business begins to assume considerable proportions, it is a pretty hard matter to do this. In fact, very few seeds can be grown to the best advantage in any *one* locality. Still another thing. It requires years of careful training to be able to grow seeds of all kinds fully up to the desired standard. Every little while some great seed grower breaks up in business; and generally, before doing so, he floods the country with seeds more or less doctored, so as to sell them cheaper. We have been victimized twice in this way since we have been selling garden seeds. You will note that we usually mention in our catalog the special seeds that are of our own growing. These are certainly not doctored, and for one I am most heartily in favor of making it a criminal offense for any one to offer seed for sale with the understanding that its vitality has been killed, its sole value being to adulterate and cheapen valuable and high-priced seeds. Good for Australia!

WHAT TO DO.

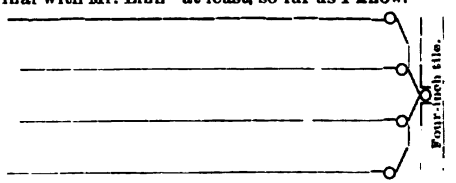
You may remember I have written a book on this very subject; but things have changed somewhat since then. Only yesterday a man went all over town with some nice Beauty of Hebron potatoes, and finally sold them to me for 20 cts. a bushel, because no one would give any more. One of the clerks in the office said they were offered only 12 cts. a bushel for their crop of new oats.* You know how it is with other things the farmers raise. Nice apples are offered at a price which hardly pays for picking them from the trees. I am not going to try to tell you what the trouble is, for I do not know. Some of the friends say it is silver; some say it is the saloon; still others, that it is over-production. It may be all of these things together, and, of course, it behooves us, each and every one, to do our part in righting the wrong. Meanwhile, what shall we do? This thing of finding myself in debt, without visible way toward paying the debts, has confronted me a great many times in my life, and I remember at least a number of times when I stubbornly set my teeth together and declared I would stop outgoes until things got in better shape. I said I would take up with the first decent offer for any thing I had to sell; and when I was tempted to pay out money I would take an invoice of my effects and see if I could not find something among my traps that could be made to answer, instead of buying the *new* things. Sometimes it was hard work; but sooner or later after making this decision things began to improve. By watching carefully for chances I almost always found places where I could accommodate somebody, and get my pay for it too.

Mrs. Root remarked at the breakfast table that there was at least one commodity that was not so very cheap—beefsteak. It is still a very necessary article for at least one member of our family; yet all the materials for producing beef at a low price are plentiful and cheap. People have wants now just as they always did —*innumerable* wants. For instance, "home-helpers" are not plentiful, even when good prices are offered. I mean by "home helpers" somebody to help your wife to do the same kind of work she does *herself* every day. Now, then, I will tell you what I am going to do: If so little is offered for what I produce that I can not get out whole, I am not going to invest either money or labor in any thing until I have pretty good evidence that somebody will pay a decent price for it. I am going to stop *buying*, and try to be happy with the things I already have. I can remember when my father and mother lived in a log cabin in the woods. They did not *have* money in those days—not even "nickels" that are thrown about so freely just now. They managed to produce, away back there in the woods, almost all the necessaries of life, and I do not know but they and their children were about as happy as people who have all modern luxuries. Yes, they were certainly a good deal *happier* than *some* people with all that modern conveniences and luxuries can supply.

* Since the above was written I find our dealers are paying 20 cts. cash for a nice quality of new oats. Two reasons are given—that for which only 12 cts. was offered was probably not first class in every respect, and since then there has been an advance in price.

SUB-IRRIGATION BY MEANS OF COMMON DRAIN-TILE.

Friend Root:—While visiting friends in the drouth-stricken regions of Kansas last summer I had my first chance to see a practical test of sub-irrigation Mr. Linn, of Osborne, had a 2½-acre plat sub-irrigated, with most wonderful results. It was all in vegetables, and such growth I never saw—onions, 800 bushels per acre; immense cauliflowers, mangels, cabbages, tomatoes, etc. He told me that he would get back first cost the first year. As you are interested in sub-irrigation I thought to send you a very rough sketch of the plan. I think the plan of watering one plat more than another is original with Mr. Linn—at least, so far as I know.



Each line represents 3-inch tile laid 12 inches deep, and lines of tile 10 feet apart. The round spot (O) is a small tube, with a plug, so as to give more or less water to the different plats, as some need more than others. In this case the water supply was furnished from a well and windmill. J. W. Margrave.

Hiawatha, Kan., July 20.

The above arrangement will work all right, without question; but it will take some manipulation to open and close the holes by means of plugs; but perhaps this will be the only way to get the water where it is needed most and not have any where it is not needed. I would suggest that, if the tiles are laid only a foot deep,

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the apparatus will be pretty sure to get out of shape, and otherwise injured by the frosts of winter—especially that four-inch cemented tile. Perhaps it does not freeze hard enough in that part of Kansas, but I should like to know how the arrangement has stood wintering.

CRIMSON CLOVER.

We have just had a visit from friend Terrill, of North Ridgeville, O. He too has been growing crimson clover. His place is seven miles from the lake shore; and his clover, sown among corn, and all sown in July and August, is a perfect success. In one piece, where the clover was put in with the growing corn, crimson clover was turned under the next year, and corn planted again. He says this is perfectly practicable. Right beside where crimson clover is turned under is a strip where rye was also turned under, and the rye had a top dressing of stable manure last fall, while the crimson clover did not. Now, the rows of corn were planted so as to cross over on to where the rye stood; and all along during the growth of the present year you could see plainly, on every corn row, where the crimson clover stopped and where the rye commenced. The crimson clover alone was away ahead, as a fertilizer, of rye with its top dressing of manure.

THE GREAT AMERICAN STRAWBEYRY.

Friend Terrill says that the big strawberry I told you about *is* the Great American, and no mistake. After all other strawberries were gone his wife said she was going to look over their beds and see if she could not find just a few more berries. When she got where a neglected matted row of Great Americans had been allowed to grow up thick, filling the path like those I described, she found just such great beauties as I did. They were later than any thing else, but, if I am correct, larger, and, to my taste, more luscious. Like ours they were too soft for shipping, but just the thing for home use after every thing else was gone.

Health Notes.

PURIFYING A CISTERN OR WELL BY THE USE OF COMMON SALT, ETC.

It is odd how one will now and then stumble across customs in vogue among the illiterate, that must have had their origin somewhere in the misty past in the brain of some acute thinker and observer. The other day an old woman in our village was seen by the writer early on Monday morning emptying a cup of some white-looking substance into her well. Curiosity prompted the query, "What are you doing?" It turned out that her grandmother, who was as illiterate as herself, had told her that, on wash-day, at least once every month, she poured a cupful of coarse salt into the well. When the day's washing was done, the taste of salt had disappeared from the water, and for days afterward the well water was colder and fresher and better every way than before.

The well water at home, notwithstanding the curbing was of sewer-pipe, and although it seemed impossible that anything unwholesome could have found its way into it, was nevertheless beginning to taste badly since the advent of warm weather; so, remembering that salt is said to be certain destruction to low forms of life, both animal and vegetable, and even having in mind that a prophet in the Old Testament had purified the waters of a certain fountain with salt, I went home and removed the covering from my bored well, and threw in about two pounds of salt. The result borders on the marvelous. After the briny taste has disappeared, by considerable pumping, I realized that the old woman had spoken only the literal truth. The water was "healed." The bad taste had wholly disappeared, and the water is now more palatable, and really appears cooler than it was before. Let him who doubts try it.

To the father of a family, who is always on the lookout against typhoid fever, and those diseases that, in the majority of cases, have their origin in impure water, this discovery is to me a Godsend.

And while on the subject of salt I will say that there is a practice among old bee-keepers in this county, who use the old-fashioned gum (which is a section of a hollow black gum for a hive), of throwing a handful of salt under the hive on the bench or bottom-board every spring. They say bees need it. They tell you that the bees will get away with it in a very few days. Well, I had read in the A B C of Bee Culture something about the use of salt water for bees; so this spring I exposed salt water during the breeding-season, in Simplicity feeders placed at a distance from the hives. At least a dozen feeders were used, and it was necessary to refill them every other day. My bees have bred up faster, and swarmed more and done better, this year than ever before. From 47 colonies there were at least 60 swarms; and my nearest neighbor, less than a quarter of a mile away, had only one swarm from 30 colonies. I have heard of no other apiary in this county in which the swarming was not a long way below normal.

I have extracted 115 gallons of honey, and could now take thirty more from the supers; but the honey now being gathered is dark, and it had better be left for winter stores. This is the best yield that I have ever had, and I can not help attributing it in some degree to the use of salt. T. S. FORD.

Columbia, Miss., June 27.

At the time the above was received, our cistern water was, from some unknown reason, exceedingly bad. We thought some small animal must have got into it; but it is so perfectly inclosed with the best of cement and stone flagging, that we did not see how it was possible. At any rate, I procured a bag of table salt, and put in some three or four pounds, and then stirred it up thoroughly with an aerating-pump. The water improved immediately, and is almost entirely free from any smell whatever. It may be, however, that the unpleasantness had begun to abate about the time I put in the salt. Mrs. Root feared it would make the water hard; but three or four pounds in a large cisternful had no perceptible effect in that direction. Will others test the matter, and report?

ELECTROPOISE.

We are just now informed that the price of Electropoise has been reduced from $25.00 to $10.00. Well, that is good, but it is not enough; $10.00 is still an extravagant price for a humbug toy that costs less than 50 cts.; and this would be true, even supposing the thing were good for something. This humbug is still given a place in many religious papers; and the *Golden Rule*—just think of it, friends—a paper that calls itself the *Golden Rule*—gives place to an advertisement containing a testimonial to the effect that it cured a *cancer!* This thing that has neither sense nor science about it, can have no possible effect for either better or worse, unless the proprietors have discovered a new force in nature unknown to the whole scientific world; yet this senseless thing, they claim, cured a cancer! Electropoise should certainly teach the *great wide world* one useful and wholesome lesson—that the remedies we take have probably, as a rule, nothing whatever to do with our getting well. We take something, nature goes to work and cures us, as she would do anyway, and then we give the drug or nostrum the credit.

Please continue GLEANINGS, as I can not well do without it. It has come to me through all the past ten years as a faithful friend, with encouraging words in times of adversity. G. C. HUGHES.

Exeter, Mo., July 2.

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WHAT CAN WE PROFITABLY PUT ON OUR GROUND IN THE MIDDLE OF AUGUST?

Dear friends, there are lots of things we can plant, with a good prospect of getting a crop; but, oh dear me! that word "profitably" troubles me just now. If you have some good rich land, and have a horse or horses, and nothing particular to do, you are all right. If, however, you have got to *hire* a horse, and pay *rent* for the use of the land, and hire a *man* to do the work, I actually do not know of *any* thing which we can plant during the month of August; and with the present prices that are offered for stuff, I am afraid I do not know what you can plant during *any* month so as to be pretty *sure* of a profit. May be you think that your old friend is getting the blues; but I am not, after all. If I had the land, and was out of work, I would most assuredly keep busy on that land, even if it were not more than a quarter of an acre, and I would make *some sort* of wages. Of course, the wages might be very low; but low wages are better than none at all. If you have children, then you can keep them busy, and make them earn something. Perhaps you will have to give them to understand, however, that *their* pay will have to depend upon the outcome of the work. If *you* get good prices you can pay *them* good prices, and *vice versa*.

I am studying just now what I shall put on my ground. I am afraid the crop I raise may not sell, but I can do this, certainly: I can raise enough for home consumption, and I can raise feed for my big team, so as to save the money it will take to buy it; but with oats and corn at present prices I am afraid I shall not get very big pay. It does us good, oftentimes, to work for small wages; and I am not sure but it does us good a great many times to be out of work. The only way to teach us to value our blessings is to cut them off for a little while. When a severe drouth cuts off the water-supply that has always been as free as the air we breathe, then and then only do we begin to realize what a blessing good water in plenty is.

Well, let us go back to the matter of gardening in August. Wax beans may still be planted, but you will probably get snap beans for table use only, and not dry beans; and may be nobody will want to buy them after you get them raised. Sometimes, however, they bring very good prices just before they are all spoiled by the frost; and I have known it to pay quite well to protect some of them with cotton sheeting, grass, or weeds, so that you have a supply when everybody else has none. There is almost always quite a call for things after the first frost has cut them off; but with the warm growing weather we have been having, navy beans would be likely to mature their seed if planted at once. Eclipse beets will do nicely if sown now. If you can not sell them for table use you can store them in the cellar in sand or sawdust, or even light mellow soil. Peat from the swamps does splendidly; and they will be nice for table use all winter long. All that is necessary is something to keep them from wilting. If they will not sell, you can feed them to stock usually.

We have been putting out cabbage-plants for the past two or three days, and I expect them to make good heads before frost. We shall put out cauliflower for a week or ten days. I enjoy seeing these hardy vegetables grow when the severe weather has banished their insect foes, and when there is no longer danger of the heat.

If you have large strong celery-plants and rich ground you can get nice celery if set out during the month of August. You can sow sweet corn, and, in fact, almost any corn, and get a good yield of fodder, more or less depending on when the frost comes. And now is just the time to sow the seed of Grand Rapids lettuce to get it ripe for Thanksgiving. As a rule it needs 90 days to get nice lettuce from the seed.

With favorable weather and plenty of rain, American pearl onion seeds may be sown now, and the onions will get large enough, and have sufficient root to stand over winter. I believe, however, the matured sets put in the last of this month, or any time during September, make a little surer thing of it. American pearl onions always sell. Get them into the city markets just about the last of strawberry-picking—pearly white onions, nicely matured—and people will want them. Winter or Egyptian onion-sets may be put in now, and they are sure in any climate or under any circumstances; and people will always buy them until they can get the American pearl or something better—that is, for bunch onions.

All kinds of peas may be put in now. In fact, we sowed a peck of Stratagems yesterday, and we are going to put in Premium Gem and American Wonder for two or three weeks yet.

Radishes are just right to be planted now, providing people will buy them when there is so much other stuff on the market. Spinach may be put in now, but it is a little early. Should the weather be very favorable, it may run up to seed. It is a pretty good plan, however, to make a planting every few days for the next two or three weeks; then you will be sure to hit it. Real nice spinach, grown on exceedingly rich ground, always sells—at least, that has been my experience.

Purple-top White Globe turnips will be just right for table use if put in now. If you can get even 20 cts. a bushel for all you can raise, you can make a good thing of it on any decent land.

Last, but not least, I think the middle of August is just the nicest time in the world to set out strawberries. I would not advise any one, however, to send off very much of a distance for the plants. If you can grow them on your own ground, or get them of a neighbor so they will be out of the ground only a few hours, you can make every plant live unless something happens. Our way is to take each plant up, with a lump of dirt adhering. We do this rapidly with some of the transplanters now in common use, and failure is almost an unknown thing. Let me tell you how we manage. In the spring we had half a dozen plants each of Wm. Belt and Brandywine, of Matthew Crawford. These are valuable and high-priced plants. We gave them a good deal of room and extra nice ground, and yesterday, Aug. 12, each plant had got such a family of young plants about it that it was necessary for them to have more room. We fixed some ground nicely, stretched a string, and, with the aid of a new transplanter, we took out every plant that was crowding its neighbor, gave it plenty of room to go to work and start a family of its own. Then the holes left by the removal of the plants were filled with old well-rotted stable manure; and before frost comes we are going to get another lot of fine plants. By the way, I never saw a single strawberry-plant make such a broad dense matted row between the months of April and August as they have this season. Our wet July is what did it.

Now, do not go too heavily into any of these things, and then neglect the work, or trust it to hired help, and have failures. Practice on moving strawberry-plants on a small scale, and do it all summer long. When you become so proficient that every plant you put out goes

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right along without even wilting, drouth or no drouth, then you are ready to push ahead a little faster.

I should be very sorry indeed if these high-pressure-gardening talks should induce any of you to invest time and money in what will prove to be only a failure; but when somebody tells me, years afterward, that strawberries helped to pay off the mortgage on their little home, and that it was the garden talks in GLEANINGS that set them at work at it, then I say to myself, "Thank God that I have been permitted to be useful to somebody."

Special Notices in the Line of Gardening, etc.

By A. I. Root.

Crimson clover, new crop, old price; viz, bushel, $3.40.

Aug. 15.—Our New Queen potatoes are now ripe, and the first planting has been dug—yield, somewhere between 400 and 500 bushels per acre. We expect to sow with crimson clover, this afternoon, the ground they occupy.

WANTED—NEW CROP COW PEAS AND SOJA BEANS.

If any of our readers have any already harvested, will they please tell us what they want for them? Of course, it will be desirable to purchase as near home as possible. One thing that troubles us is, there are ever so many varieties of cow peas, and I am told there are at least three varieties of soja beans. The kind that is used for coffee, Cole's great American coffee-berry, for instance, is said to be different from those raised for stock. Can anybody tell us about it? We have quite a little crop of the coffee-berry coming on of our own growing.

HONEY COLUMN.

CITY MARKETS.

The quotations in this column are based, as nearly as possible, on the grading adopted by the North American, and are the prices that the commission men get, and on which the commission for making the sales is figured. The grading rules referred to are as follows:

FANCY.—All sections to be well filled, combs straight, of even thickness, and firmly attached to all four sides, both wood and comb unsoiled by travel-stain or otherwise; all the cells sealed except the row of cells next to the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark. That is, there will be "fancy white," "No. 1 dark," etc.

Dealers are expected to quote only those grades and classifications to be found in their market.

NEW YORK.—*Honey.*—No new comb on the market yet, and we would not advise shipping before September 1st or latter part of this month. Extracted is selling fairly well at unchanged prices. Supply plentiful. Beeswax very dull and declining.
HILDRETH BROS & SEGELKEN.
Aug. 10. 120 & 122 West Broadway, New York.

KANSAS CITY.—*Honey.*—Fancy white, 15; No. 1 white, 13@14; fancy amber, 12@13; No. 1 amber, 11@12; fancy dark, 10@11; No. 1 dark, 8@10; extracted, white, 6@6½; amber, 5@5½; dark, 4@4½; beeswax, 22@25. C. C. CLEMONS & CO.,
Aug. 10. 423 Walnut, Kansas City, Mo.

CLEVELAND.—*Honey.*—Fancy white, 14@15; No. 1 white, 12@13; extracted, white, 6@7; amber, 4@5½; beeswax, 22@25. Market on honey very quiet; selling slowly at quotations. WILLIAMS BROS.,
Aug. 10. 80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.*—Fancy white, 14@16; No. 1 white, 12@14; No. 1 amber, 11@12; white extracted, 6@7; dark, 4@5. Beeswax, 20@25.
CHAS F. MUTH & SON,
Aug 12. Cincinnati, O.

MILWAUKEE.—*Honey.*—Fancy white, 14@15; No. 1 white, 12@13; No. 1 amber, 8@10; white extracted, 7@7½; amber, 5@6; dark, 4@5; beeswax, 22@24.

There is not much demand for honey at this time. Receipts of the new crop not very large yet, and quality fairly good. We think there is good reason to expect a large consumptive demand later on, and this market will afford as good encouragement to shippers as any. A. V. BISHOP & CO.,
Aug. 11. Milwaukee, Wis.

DETROIT.—*Honey.*—No. 1 white, 11@11½; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@9; No. 1 dark, 7@8; white extracted, 6@6½; amber, 5@5½; beeswax, 24@25. M. H. HUNT,
Aug. 13. Bell Branch, Mich.

PHILADELPHIA.—*Honey.*—Extracted, white, 8@10; amber, 4@5; dark, 3@4; beeswax, 25. No comb honey in this market at present, and old comb about cleaned out WM. A. SELSER,
Aug. 13 No. 10 Vine St., Philadelphia, Pa.

CHICAGO.—*Honey.*—Fancy white clover, 13@14; No. 1 white, 12@12½; fancy amber, 9@10; No. 1 amber, 7@8; fancy dark, 8; No. 1 dark, 7; white extracted, 5@7; amber, 5@5½; dark, 4½@5; beeswax, 25@26. There is very little movement in honey, owing, perhaps, to unusually hot weather. The offerings of the new crop are in most instances of a high grade.
R. A. BURNETT & CO.,
July 20. 163 So. Water St., Chicago, Ill.

Quantity lots of water-white extracted and gilt-edged comb honey constantly on hand at bottom prices. Safe arrival guaranteed.
B. WALKER, Evart, Mich.

FOR SALE.—6000 lbs. Wisconsin extracted basswood honey, fine quality, in basswood kegs holding about 240 and 260 lbs. each at 6½c per lb.; 1000 lbs. or more at 6c per lb. G. W. WILSON,
Kickapoo, Vernon Co., Wis.

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N. L. STEVENS, Venice, Cayuga Co., N. Y.

FOR SALE.—4000 Lbs. Choice Extracted Basswood Honey, in new 60-lb. cans, 8c. Sample for stamps. Fifty fine tested Italian queens, 65c each. Hound pups, $5.00 each. Set butcher tools, $50.00. ELIAS FOX, Hillsboro, Wis.

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On account of my wife's death, my beautifully located home, containing 40 acres of land, situated one mile from a lively town, and only 50 miles from Little Rock; having abundance of all kinds of fruit; is also a good location for bees.
CHARLES W. FRANCIS,
Morrilton, Conway Co., Ark.

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Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8 | Bible, *good print*, neatly bound..... 20
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20 | Illustrated Pilgrim's Progress**..... 75
This is a large book of 425 pages and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5 | Harmony of the Gospels..... 35
3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*..... 10
1 | Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper..... 05
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4 | Stepping Heavenward**..... 18
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5 | Tobacco Manual**..... 45
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15 | A B C of Bee Culture. Cloth..... 1 10
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3 | Amateur Bee-keeper, by J. W. Rouse..... 22
14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§..... 2 36
21 | Same, Vol. II.§ .....r 2 79
| or, $5.25 for the two, postpaid.
10 | Bees and Honey, by T. G. Newman..... 90
10 | Cook's New Manual. Cloth..... 1 15
5 | Doolittle on Queen-Rearing..... 95
2 | Dzierzon Theory 10
3 | Foul Brood; Its Natural History and Rational Treatment..... 22
1 | Honey as Food and Medicine..... 05
15 | Langstroth Revised by Ch. Dadant & Son.. 1 10
10 | Quinby's New Bee-Keeping. 1 40
| Thirty Years Among the Bees, by H. Alley 50
| Handling Bees, by Langstroth. Revised by Dadant..... 08
| Bee-keeping for Profit, by Dr. G. L. Tinker 25
5 | The Honey Bee, by Thos. William Cowan.. 95
| British Bee-Keeper's Guide Book, by Thos. William Cowan, England§..... 40
3 | Merrybanks and His Neighbor, by A. I. Root 15
4 | Winter Problem in Bee-keeping, by Pierce 46

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5 | An Egg-Farm, Stoddard** 45
| Amateur Photographer's Hand-book**.... 70
5 | A B C of Carp Culture, by Geo. Finley .. 35
5 | A B C of Strawberry Culture** By T. B. Terry 35
Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry**..... 35
This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.

| Barn Plans and Out-Buildings*..... 1 50
| Canary Birds. Paper..... 50
2 | Celery for Profit, by T. Greiner**..... 25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book.

| Draining for Profit and Health, Warring. 1 50
This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact friend Fuller here tells us how, by easy steps, to make any grapevine come into the work, and make a pleasant, orderly appearance; and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of season. We have tested the system, and know whereof we speak.

8 | Domestic Economy, by I. H. Mayer, M. D.** 40
This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life-study. The regular price of the book is $1.00; but by taking a large lot of them we are enabled to make the price only 40 cts.

| Farming For Boys*..... 75
This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-Growing**..... 90
This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 156 pages.

10 | Fuller's Grape Culturist **..... 1 40

12 | Gardening for Pleasure, Henderson*..... 1 85
While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations.

12 | Gardening for Profit** 1 85
The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

| Gardening for Young and Old, Harris**.... 1 25
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Garden and Farm Topics, Henderson**.... 75
| Gray's School and Field Book of Botany... 1 50
5 | Gregory on Cabbages; paper*..... 25
5 | Gregory on Squashes; paper*..... 25
5 | Gregory on Onions; paper*..... 25
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

10 | Greenhouse Construction**..... 1 40
This book, by Prof. Taft, is just out, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay.**..... 1 35
By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

| Handbook for Lumbermen..... 05
10 | Household Conveniences..... 1 40
2 | How to Propagate and Grow Fruit, Green* 15
10 | How to Get Well and Keep Well..... 90
An exposition of the Salisbury system of curing disease by the "lean mean diet."

2 | Injurious Insects, Cook..... 10
10 | Irrigation for the Farm, Garden, and Orchard, Stewart* 1 40
This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush**..... 35
By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 48 pages and 35 cuts.

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VOL. XXIV. SEPTEMBER 1, 1896. NO. 17.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. ROOT CO.
MEDINA, OHIO.

MURRAY HEISS CLEVELAND O.

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

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E. R. ROOT, Editor of the Apicultural Departments.
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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO.
$1.00 PER YEAR

Vol. XXIV. SEPT. 1, 1896. No. 17.

STRAY STRAWS FROM DR. C. C. MILLER.

AUGUST 18. Honey harvest never entirely stopped yet, but I think it's about done now.

APPLES are abundant in this region. That means a bad fall for bees. Cider-mills.

THE NEW WOMAN will be after Bro. Hasty, who talks in *Review* about "combs *manned* with bees."

MY ACRE OF ALSIKE has, August 19, a second crop fully equal to the first, with, I think, more bees on it.

GLAD TO SEE A. I. ROOT is part of the Board of Trustees of the Anti-saloon League. Needs good lumber in that board.

I WAS AFRAID queens might go into sections more with thick top-bars than with honey-boards, but my fears have not been realized this summer.

COWAN'S British Bee-keeper's Guide-book has had such a run that the thirtieth thousand is now out. No other bee-book has ever been translated into so many languages.

I'M LOOKING with much interest for the replies to those questions sent to honey-dealers, as also the ones sent to producers, p. 610. Good scheme. [See replies in another column.—ED.]

HUTCHINSON says he has never experienced the difficulty T. H. Kloer has through queens leaving nuclei after being taken from full colonies. I have, and I'll venture the guess that Mr. Kloer's nuclei are too weak.

I DON'T KNOW of a buckwheat-field within reach of my bees, but I've had several buckwheat swarms—something very unusual with me. Or would you call it a buckwheat swarm when it comes in the middle of August?

AND NOW it's Rambler, in *The Pacific Bee Journal*, who repeats the—the—mistake that I oppose shipping honey east from California. I hope he will have his usual manliness, and make the proper correction when he finds himself in error. Some others seem to have forgotten to do so.

WHAT ASSUMPTION on the part of A. I. Root to interpolate the word "pleasant" in that classic line,

And we'll settle on the banks of the O-hi-o.

That's the way we boys and girls sang it in Pennsylvania when "going west" meant going to Ohio.

ELECTROPOISE, as mentioned on page 617, is reduced from $25 to $10; but it should have been added that it's only *for a time*—just to introduce it, you know. Now's the chance for us all to make a fortune—buy at $10, wait for the rise, then sell at $25. Wonder how many it will be safe for me to invest in.

V-SHAPED SELF-SPACERS are not among the things I've monkeyed with lately, friend Corey (p. 600). No V-shape for me. I want a nail with a head ¼ inch thick and $\frac{3}{16}$ across. The editor wants my order for several thousand pounds at $1 a pound, but I want only 10 pounds at that price. Please send the 10 pounds by express, Mr. Editor.

"I FULLY BELIEVE that, by some means, we shall yet find some profitable method of preventing swarming," says the editor of *Review*. That sounds a good deal better, W. Z., than when you talk about no further advance to be made in bee-keeping. [Just what I have been saying too, and I did not know that my brother-editor had been voicing the same sentiment. "Great minds run," etc.—ED.]

FRIEND COGGSHALL wants me to save ordering that 1000 pounds of special nails, by using small staples for frame-spacers; but the staples when crowded would be buried in the wood. G. W. Petrie comes very close to the mark by using, in place of the desired nail-heads, little cylinders of wood ¼ in. wide and ¼ long, driving wire nails through them, and having a furniture-nail to space the *end* of the top-bar. [If I am not mistaken, doctor, 1000 such nails, to say nothing of pounds, would be more than

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you would put into actual use. We could turn out 100 in a lathe, and these would give you an opportunity to try them in 12 eight-frame hives. I have been trying something very similar, and did not like it a little bit; but why, I can not explain. If you will whittle out a piece of wood, or file a piece of metal just exactly as you want it, we will make 100 for you.—ED.]

WHAT YOU SAY on p. 614, friend Root, makes me wonder why it is that there is such a low grade of morals generally prevailing as to stealing any thing to eat. Thousands who would never think of stealing five or ten cents in money have no compunctions about taking—they don't seem to think of it as stealing—five or ten cents' worth of fruit or honey; and causing the loss of a colony of bees for the sake of getting a little honey is only a "joke."

THE AVERAGE WEIGHT of a prime swarm, according to J. M. S., in *American Bee Journal*, who weighed all his swarms for two years, is 6 pounds, the heaviest being 8 and the lightest 5½ pounds. Second swarms averaged 3 pounds. These were from eight-frame hives. [Quite a number of years ago we bought swarms of the farmers at so much a pound. The bees were brought in their hiving-boxes or hives just as they had been shaken from the limb. Boxes, bees, and all were weighed on accurate scales, the bees dumped out, and then the box reweighed to get the weight of the bees. The bigger the swarm, the more we had to pay; and there was never any "kick" on either side as to the price of a certain swarm, as the scales settled it. We bought in all something like 50 swarms that season, and, if my memory serves me correctly, the weights corresponded very closely with those you have just given.—ED.]

SAY, ERNEST, you keep out from between Skylark and me or you'll get hurt. So you don't understand how I can "separate sections from the wood." Well, I'll tell you. I take a knife and I cut all around the section of honey, lifting off the wooden section and leaving the section of honey on the plate, thus "separating the section from the wood." That's the way we call things at Marengo; how do you call them at Medina? Isn't it a "section of honey" you have on the table? and isn't the wood separated before it's put on the table? [In using the term *section* we sometimes mean the wood and the honey, but never for the honey alone. The term *section* more often applies to wood that surrounds the honey. Yes, sir, we separate the section of honey from the wood around it just as you do; but we always refer to it as cutting the honey out of the section.—ED.]

WHEN I READ p. 617 I went right straight and put a pan of salt into one of our cisterns that hasn't been used for some time because of its bad smell. We'll see what the salt will do. But I don't propose to stir it with any aerating pump, for that alone ought to sweeten it. [Fire-insurance men in many cases recommend barrels of water standing upon the different floors of factory buildings. Salt is often recommended to keep the water sweet. A few days ago the boys reported that our barrels of water were "smelling awful bad," and they wanted me to come up and take a smell. I then remembered that we had not complied with the directions in putting in salt, or, what is perhaps a little better, carbonate of soda. But, say; those barrels of water without any salt in them, as they had stood two or three weeks, did smell "awful bad," and no mistake. They have been "doctored" and are now keeping nice and sweet. If it works well on a small scale, why shouldn't it on a large? But I wouldn't recommend carbonate of soda for cisterns.—ED.]

THE VETERANS are beginning to go. Corneil and Pringle in Canada, and now B. Taylor on this side. We'll miss them all. Who'll go next? [Yes, and a couple more would have gone had it not been for the Salisbury treatment. One of his patients talked beef diet to B. Taylor. If he had gone on to it, I believe he would have been alive to-day, old as he was. Our friend Mr. Pringle was an earnest advocate of a vegetarian diet; and he too, I believe, might have been numbered with the living had he believed as thoroughly in the Salisbury treatment. While I do not call myself a veteran, nor place myself alongside these names, I wish to say that I never enjoyed better health than to-day. Yesterday a bee-keeper who met me two years ago at the Toledo convention said he would have hardly known me, as I had filled out so much and looked so much better. "Why," said he, "I went home and told my folks that I did not believe Ernest would live very long; but now," he continued, "you look so well and strong." I am not on the diet now; but when I do not feel just right, back I go on to the diet, and out I come from my slight indisposition. My own experience is only a repetition of A. I. R.'s, Dr. C. C. Miller's, Harry Lathrop's, and quite a number of others' who are known personally to me but not to the bee-keeping world.—ED.]

R. L. TAYLOR says in *Review*, "Not more than one or two per cent of the colonies did any thing at all in the supers before casting swarms, and many did not wait to fill the combs in the brood-nest." There it is again. Lots of room seems to work for the Dadants but not for everybody else. [Giving lots of room, *a la* Dadants, works nicely with us; but I want to say that I find that empty combs in a single eight frame brood-nest do not necessarily act as a preventive of swarming; but where we have had two eight-frame brood-nests, one on top of the other, making a capacity of more

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than one of Dadant's large hives, even if those two hives were tolerably well filled with brood and honey, there has been very little if any swarming; but wherever possible we try to arrange to have a set of extracting-combs on one of these double stories. Having such I would almost guarantee that there would be no swarming, either at Mr. Taylor's or at your place. It is not so much, then, empty combs in a *small* brood-nest as it is in having a large amount of hive capacity; and I am not so sure but a large amount of brood with lots of bees tends rather to contentment, so far as other quarters are concerned, than otherwise, providing that they are in a large hive; but this large amount of brood and bees must be in a good-sized hive.—ED.]

A NEW UNION AND HONEY EXCHANGE.

The North American meets the 7th of October next. This is just the chance you want to form and organize a new union and honey exchange—national in every respect. There will be present a large number of bee-keepers—men of national reputation, almost equal to myself, and you will not get such a body together soon again. Take the constitution of the present Union and add ample power to protect bee-keepers in every thing that relates to their calling—power to fight adulteration in the legislative halls, in the courts, and in the streets. This question of adulteration overtops all others that confront us at the present time. Every thing else dwindles into utter insignificance before it. It is the greatest enemy we have to fight. One man or a few men can do nothing; but a great organized body, cemented together by mutual interests and a common objective point, would be invincible in pleading for the right in the legislative hall or in a court of justice. This hydra-headed monster, Adulteration, that has started up in our path, is the only one that bids fair at the present time to destroy us in the end. Its utter destruction and annihilation is our only salvation. "Is life so dear or peace so sweet" that we will stand idly here and allow our enemy to sweep over us, carrying every thing before him? No! a thousand times no! I don't want to say any thing against the little Union, and I won't; but I have examined it with my little microscope, and it appears to watch that $700 very much as a little bulldog watches a bone that he has laid away for future use. A national union and honey exchange would soon absorb it, for the members of the Union, as it is, would see that they could get much more protection in the new organization. This institution would be the great bulwark of our liberty—the fortress from which would belch forth the thunder of our cannon on evil-doers—a protection and a defense at all times and under all circumstances. Don't talk to me about the expense of it. I hate expenses. A man would actually make money by his membership. Can you buy $100 worth of supplies as cheap as you can buy 25 carloads? Well, that is exactly what this union and exchange would do—buy in large lots and sell to members at cost, plus expense of handling. To outsiders it might sell at a fair profit, benefiting even them. Any bee-keeper would make much more than his outlay for membership by belonging to it.

And last, but not least, there is the great and paramount object of having your honey handled honestly. It would be no joint stock company, where a few men can get rich at the expense of the many. Every man would be just as good as another, and a great deal better. This institution would eventually control the honey market, and get much better prices for our product. Thousands would flock into it, for they can see they would be making money by it. If a man can *see* he is losing money by staying out, how long will he stay there? If they can see, as they will see, that it is a blessing and a free lunch to be in, won't they tumble in pellmell? Some say we are talking too much; that action is what is wanted, and then they go on and talk a good deal more. Well, why don't *they* act—take the lead without talk? the fact is, no one seems willing to make a leader of himself. But now a great body of leading bee-keepers is about to come together at Lincoln, Neb., and it is to them we must look if any thing is to be accomplished at the present time. Turn the North American, with its present membership, into a new "Union and Honey Exchange," and in three months there will be 1000 names on its rolls, and it will increase so fast that the little Union will march up to its treasury and cast in its little trifle of $700. Let the headquarters be at Chicago, the hotbed and sink of adulteration. First fight for pure-food laws, and then fight to get them executed, and it will not be long until the hydra-headed monster is laid low in the dust.

A GREAT DISCOVERY.

Mr. Editor, I have struck it rich. I thought I ought to tell this at once, and unfold to all beedom this unthought-of discovery. But it might be too much of a shock; and then again some of you will not be satisfied. You will want to breed off its tail and its wings, while others will want to breed out the swarming fever; and yet, how do I know I shall get another chance? "We know not what a day may bring forth." This great truth was indelibly fixed in my memory by the "stop short

never to go again" of a friend of mine. I had known him for three long days and nights as an exemplary citizen and a pattern to the rising generation. In taking a walk to the next town he found a rope and took it with him. He didn't know that a horse had hitched himself to it until after he sold the rope for $50. Then there was a hue and cry raised, and in 15 minutes my friend found himself at the other end of the rope, dancing on this delicious climate. He didn't know "what a day would bring forth." What a blessed thing is climate, anyway!

THE HONEY MARKET OF THE UNITED STATES FOR 1896.

POINTERS ON PUTTING UP HONEY, FROM HONEY-MEN; PROPER SIZE AND SHAPE OF SHIPPING-CASES; PREFERRED WEIGHT OF SECTIONS; BEST TIME OF SELLING, AND EXTENT OF THE HONEY RECEIPTS SO FAR.

[It will be remembered that, in our last issue, I called for answers to a set of questions propounded to commission men and honey-buyers, who render us regularly honey quotations in our Honey Column in GLEANINGS. The answers from the various honey-men are now all or nearly all in; and, taken as a whole, the matter will be found to be exceedingly valuable. No bee-keeper who expects to send his honey away to market can afford to do so without first reading over these replies. To save the reader the trouble of looking back to our last issue to the set of questions which were propounded, I reproduce them here.—ED.]

1. What style and size of shipping-case is best suited for your market?
2. What style of package for extracted honey in bulk—that is, whether square cans or barrels and kegs?
3. What weight of sections seems to sell best?
4. What time in the year do you secure the best prices?
5. What effect will the absence of California honey have on the price of Eastern honey?
6. From your receipts so far of honey, how does this season compare with that of last year?

Buffalo, N. Y., Aug. 10.

1. Best white comb honey should be only in 20-lb. cases of twenty 1-lb. combs each as nearly as can be, and to run under 20 lbs. net rather than over, and the cases with two glass fronts, but no glass on the comb frames.
2. Extracted should be in 1 or 2 lb. tin cans, same as canned goods, as they can then be readily retailed to consumers.
3. One-pound combs, light weight, or not to exceed 1 lb., sell best.
4. Honey sells best usually, from September to December, and drags some at other times.
5. Buffalo has never been seriously affected by California honey, except occasional seasons. Its absence should favorably affect our markets.
6. Receipts somewhat earlier than usual, and a surplus of fruit causes moderate demand as yet, although perhaps slowly increasing.

BATTERSON & CO.

Detroit, Mich., Aug. 8.

1. 12-lb., 3 row.
2. Square cans.
3. One-pound.
4. Fall.
5. Can't tell.
6. Much better.

M. H. HUNT.

Boston, Mass., Aug. 8.

1. Neat new basswood, 20 combs, 18 to 20 lbs. net; two-thirds cartons, one-third glass fronts.
2. Five-gallon square cans.
3. One-pound, but not ov. .
4. Sept. 1st to Jan. 1st.
5. Very little, as eastern honey is plentiful.
6. About the same.

E. E. BLAKE & CO.

Kansas City, Mo., Aug. 10.

1. We prefer the 24 sections, single tier.
2. The square cans, and barrels or kegs for cheap grade of honey.
3. Some dealers prefer light sections, and some full weight.
4. In the fall.
5. Will have a tendency to make prices firmer.
6. Our receipts are lighter this year than they were last, up to this time.

C. C. CLEMONS & CO.

Philadelphia, Pa., Aug. 14.

1. 24-lb. single-tier, glass one side.
2. For grocer trade, 5-lb. round cans; for manufacturers, kegs.
3. One-pound, full weight.
4. October and November.
5. None whatever; cheaper this year than ever.

I do not class myself as a commission man. I always feel sorry when I hear of any goods being consigned to me. I desire to buy outright, and desire to quote market so goods will be offered to me.

WM. A. SELSER.

Minneapolis, Minn., Aug. 8.

1. We think that large cases for shipping comb honey to hold, say, eighteen 24-lb. sections, is perhaps the best arrangement that has come under our observation and experience. By all means avoid miscellaneous boxes. Have uniform sizes all around.
2. Square tin cans holding five gallons, or about 60 lbs. each, packed two to the wooden case, with a wooden partition between, strong tinware, and good cases, by all means.
3. One-pound sections.
4. October, November, and December for comb; and these months, with the early spring months added, for extracted.
5. The failure of the California crop will enable Eastern producers to market their stocks at better prices. Still, there will be plenty of honey.
6. Our receipts of local-grown comb honey this year have already been numerous, and are of a much better quality than those we have had in previous years. There is in this section of the country a marked improvement in the method of producing, packing, grading, and shipping honey, which promises well for the future. The flavor of this year's Wisconsin, Minnesota, and Northern Iowa honey is unusually good.

S. H. HALL & CO.

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St. Louis, Mo., Aug. 10.

1. Cases with glass fronts, 24 to 36 lbs.
2. Choice white in cans, either jacket or square; common and amber in barrels.
3. One-pound.
4. First of October to first of January.
5. Should tend to stiffen prices. There is quite a good deal of old California in our market.
6. Receipts are lighter.

WESTCOTT COMMISSION CO.

Milwaukee, Wis., Aug. 8.

1. Single-story cases, 10, 20, and 30 lbs. each.
2. Either or all kinds of packages named mostly preferred; kegs and 60-lb. cans and half-barrels for white honey; dark honey in barrels and half-barrels.
3. One-pound sections, almost invariably.
4. There is no regular rule; usually early shipments in September.
5. It will have a tendency to improve values.
6. The receipts have been more and earlier, for new.

A. V. BISHOP & CO.

Cleveland, O., Aug. 7.

1. Cases containing 24 sections of about 20 to 22 lbs. weight.
2. Packages for extracted honey, square cans holding about 60 lbs.
3. Weight of sections should be a little less than one pound.
4. We get the best prices in August and September, but sell more goods in December and January.
5. We do not think the absence of California honey will have very much effect.
6. Receipts of honey so far have been more than last year up to this time.

WILLIAMS BROS.

Denver, Col., Aug. 10.

1. For comb honey, a double-tier 24-lb. shipping-case.
2. For extracted honey, 60-lb. cans, two in case.
3. Full-weight sections, 16 oz. to lb., sell best (*16 to 1*).
4. We get the best prices in the early spring months.
5. It will have the effect of giving us better prices and sales.
6. Our honey receipts so far are lighter than last year.

R. K. & J. C. FRISBEE.

Chicago, Ill., Aug. 8, 1896.

1. 12 and 24 lb.
2. 60-lb. cans and barrels.
3. Sections weighing not to exceed 16 ounces and not less than 15.
4. September and October.
5. All commodities are extremely low this year—pork, grain, potatoes, apples, butter, and eggs and dried fruits. We believe the condition of the country doesn't warrant high prices on comb honey. We will endeavor to hold our market on fancy white 1-lb. sections at 15c per lb. We can not predict at this writing, but will be in position to answer this question about September 1.
6. Our receipts this year far surpass any other year as to quality. We will say the quality is excellent. The shipping-cases are perfect.

S. T. FISH & CO.

Riverside, Cal., Aug. 10.

1. 24-lb. shipping-cases are what the trade asks for, for comb honey; 5-gallon square cans are cheaper, and best package we have for extracted honey in California.
2. Buyers of comb honey frequently stipulate that sections shall not weigh more than one pound.
3. I would advocate the uniform use of 1⅞ sections, and that producers always use separators.
4. The time of year in which best prices are realized depends altogether on the extent of the crop, both in the year in which selling is done and the year previous. We realized best prices in California in July of last year, owing to the partial failure of the eastern crop the year before. This season, when light crop follows large one, best prices will be realized later.
5 Eastern honey should be higher.
6. Honey crop in California for 1896 will be about 7 per cent of the crop of 1895. There will not be one car of honey made in California from wild forage-plants.

B. F. BROOKS.

Springfield, Mass., Aug. 11.

1. We prefer a package containing 25 to 30 lbs. honey, in short 1-lb. packages.
2. We have had very little to do with extracted honey, therefore we could not give a satisfactory answer to this question. We do not handle sufficient to quote on.
3. Answered in No. 1. Short pounds sell best in this market.
4. From the latter part of August to the first of January we have our best market, although we have had a very nice trade from January 1st until April 1st in some seasons, owing to the condition of other things in the market at the time that tend to take away the sale of honey.
5. We have had very little California honey in this market, therefore do not know how it would affect the sale of York State honey.
6. We can not give you any answer that will be in any way satisfactory to you, as the season has not yet commenced for honey, and will not for about two weeks as yet. We expect to have a very satisfactory sale of honey this fall, and no doubt we shall have a very nice market.

PERKINS & HATCH.

New York, Aug. 10.

1. Single-tier, holding 24 one-pound sections.
2. California and Arizona, in 60-lb. cans, 2 in case; southern and western, in barrels and half-barrels; New York State and Eastern, in kegs. The trade being accustomed to these packages, we would not favor changing them.
3. One-pound section only, light weight always. No demand for any other size or weight.
4. For comb honey, during September, October, and part of November. Extracted selling all the year, will depend on supply and demand.
5. There is no total absence of California honey; besides, quite a lot was carried over. Last year's crop of California honey was very large, while in all other producing centers it was very light. This year it is the reverse, large crop all over excepting California. The competition of California, therefore, being nominal, fair prices should be obtainable for eastern and western honey. If the crop of California had turned out as large as that of last year, there is no doubt that prices would have gone still lower than those of last year.
6. Receipts from the South have been much larger than those of last season. No receipts from other centers as yet.

HILDRETH BROS. & SEGELKEN.

Cincinnati, O., Aug. 10.

1. Glassed cases holding 12, 20, or 24 lb. sections, no difference whether single or double tier, are most popular.
2. Barrels, half-barrels, and crates of two

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60-lb. tin cans are alike acceptable to manufacturers.

3. One pound light.

4. When new honey comes in first.

5. None whatever these close times. Nothing can be sold at a high price.

6. Our receipts so far have been at least twice as large this year as they were last year at this time. CHAS. F. MUTH & SON.

THE ACCEPTED RULES OF GRADING CRITICISED; A MODIFICATION PROPOSED.

Friend Root:—My aversion grows against the "Rules of Grading" the longer I am writing market reports. Almost every quotation made according to the rules, since their existence, was erroneous, because not a dealer had the quality he was quoting on. Such is the case in nine cases out of ten. I call on practical honey-producers and dealers familiar with the business to say whether I am right or wrong. In all my dealings, one carload only of comb honey, from Colorado, came into my possession which came near the standard described under "Fancy White." A perfect lot of comb honey is a rarity, and all we do have should be called by its proper name as nearly as possible.

All comb honey should be white. The more its color varies from white, the lower its grade and the more unsatisfactory its sale. We don't improve the quality any by calling it "Fancy Amber;" and what "fancy" is there on dark comb honey?

Whoever puts on the market unsightly honey, be it white, amber, or dark, does not understand his business. He gets into trouble with his consignee; and if doesn't, then his consignee loses money. We are not yet done taking unsightly combs from the cases of last year's shipments and—throwing them into the rendering-buckets.

I would suggest the following rules for grading:

Fancy white comb honey, as per present rules.

No. 1 white, as per present rules.

No. 2. Let this grade embrace those qualities next to No. 1, and the best amber.

No. 3, embracing next to the best amber and the best dark.

No. 4, dark honey.

I believe that "Fancy white," No. 1, No. 2, No. 3, and No. 4, will signify best our different qualities of comb honey. "White," "amber," and "dark" answer the purpose for extracted honey. CHAS. F. MUTH.

Cincinnati, O., Aug. 19.

[I am ready to concede that there is some truth in what you say, especially as you are an old, old honey buyer. If I understand you, "Fancy white," as it now stands in the accepted grading, is all right, but that commission men, in your opinion, are using it on grades that are no better than No. 1. If any of them are, let's call 'em down. If they can't grade correctly we will grade 'em—out of our Honey Column.

It sounds a little queer to talk about "fancy dark" or "fancy amber," I must confess. I should like to hear from other commission men. So far as GLEANINGS is concerned, it can easily adapt its rules to fit the requirements of commission men and honey-men and producers. All we need is to know *what* those requirements are.—ED.]

FIGURING ON THE COST OF PRODUCING HONEY.

DIFFERENT CONDITIONS IN CALIFORNIA; REPLY TO ADRIAN GETAZ.

By C. H. Clayton.

I desire to say that Mr. Getaz is totally in the dark as to our conditions here in California in his article in GLEANINGS of Aug. 1. My article was written to convey an idea of the actual cost of producing honey. If I were as active as Mr. Getaz, and "worked for nothing and boarded myself," I might modify my figures. I doubt whether Mr. G. could take care of half of 285 colonies here in California, much less "three or four times that number."

In 1893 I had but 95 colonies. I extracted once a week for ten weeks in succession; and by the time I cased up my honey and attended to other necessary work around the apiary I had but little time for any thing else. Last year I had 177 colonies; but the flow was not so rapid as in '93, so I extracted once every fifteen days, and managed to do it all alone. I am 45 years old this month; stand 6 ft. in my socks; have the unrestricted use of all my members, including the unruly one; but I don't want any more than I had last year to handle alone. Why, Getaz couldn't *uncap* the half of his three or four times 285 colonies, to say nothing about removing the combs from the hive, extracting, returning combs to hives, and casing up the honey.

As to the items which he says do not have to be paid in cash, they should be counted the same as any cash item to determine your selling price. I am not keeping bees for fun. I am "out for the stuff." If I invest a thousand dollars in bees, and give them a year's care—including in the year three or four months' hard labor—pay taxes on them, assume losses from disease, etc., I must have something more than bare wages and interest on the original investment.

WHAT CAN YOU FURNISH DRAWN COMBS FOR?

I know of no one who is engaged in the production of drawn combs for the market. I think if I were to engage in that line I would have to figure the interest on cost of plant, and add these to cost of frame, wire, foundation, honey consumed (which otherwise you would have), and labor of making frames, putting in foundation, etc. Now, I want you to make a figure on this and let us all know what you can furnish them for. I'll buy mine ready drawn if

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there is a profit in it, and keep my bees at work storing honey.

Mr. Getaz' advice about the "home market" is a hollow mockery so far as we are concerned. It is all right for the man who has three colonies, "spring count," increased to five, "besides securing 26 pounds of nice comb honey." Suppose you live in a region where one out of every three heads of families, to say nothing of cases like Rambler, who is both head and tail, is producing honey for the market. There are about 300 voters in the township in which I live. Of this number 81 are bee-keepers, with apiaries of from 25 colonies for the beginner to seven or eight hundred for the veteran, the average being about 90 colonies.

The half-dozen counties in the Southern California honey-belt shipped by rail in 1895 2875 tons, as per reports of the freight auditors of the two overland roads. I have no means of knowing exactly how much was shipped by water during the same period. The quantity must have been large, though, for much of the San Diego, Ventura, and Santa Barbara honey was sent away by water. Now, this whole region, perhaps larger than the State of Tennessee, has less than half a million population. So you see we can make no account of the home market.

I do not think it is fair that the grocer should pay all his "license, clerk's salary, store rent, delivery-wagon, book-keeping, collecting, etc.," from the profits of my honey, unless he deals exclusively in honey. He doesn't double the prices of his sugar, his salt, his spices, his tinned goods, his flour, potatoes, etc.; then why should he not pay the honey-producer a price nearer the selling price of the honey?

□Lang, Cal., Aug. 8.

[We have never had much if any call for drawn combs—probably for the reason that we have discouraged the buying of them on account of the danger of infection from foul brood. As we have had that disease in our own yard, we have several times refused to supply combs because they are a very common medium for the transmission of the disease. We have refused even when there was and had been no traces of the disease; but as there was danger that microbes *might* be in the combs, and break out any time, we did not care to lay ourselves liable for damages.

I firmly believe combs from foundation could be produced at the prices they have been offered and sold for in years gone by—25 and 30 cts. apiece, and that, too, on wires in first-class frames. My plan would be to put them in the hives at the beginning of the honey-flow, alternated with combs already drawn out. As soon as they are filled with honey, extract them and let the bees clean them up.

The price you allowed in the original estimate was 75 cts. per comb "for purposes of income." But this, I am sure, was altogether too large; for we can never figure the cost of any thing at more than what it can be replaced for. A colony of bees might cost, say, $5.00; but for purposes of income it might be worth some seasons three times that; but its intrinsic value could be no more than the market price, whatever that might be.—ED.]

MOUNTAIN LAUREL.

HOW IT PROVED TO BE POISONOUS IN TWO INSTANCES.

By C. C. Lindley.

Mr. Root:—Noticing your and Dr. Miller's note in July 15th GLEANINGS concerning the poison-honey question, I will tell you briefly what I have learned about it. Last year we had considerable complaint about bitter honey, and in a few cases people became very sick from eating honey—all of which was very recently taken out of the old-style hives—gum logs and boxes. There was but one complaint from honey made in sections, and that was only somewhat bitter, and had been off the hive some time. Among others I know of two reliable persons who gave me the particulars of their experience with honey that made both sick—one very much so, so that he was "laid up" about two days, and had to have medical aid in the beginning of his sickness, which resulted soon after eating some tolerably fresh honey at breakfast. He said the honey had a taste a little peculiar, and somewhat in keeping with the odor of the laurel bloom. The symptoms are about all described alike—the first trouble appearing being somewhat sick, and then dizziness; the eyesight (in such cases as this one) was also affected, and stinging, pricking pains in the muscles and various portions of the body. Vomiting soon occurs, which affords some relief; but the victim may feel the bad effects for some days afterward. Another case, that of a blind minister. He said his experience was about the same as the first named, except he did not get so sick; but the dizzy feeling of the head and pains were about the same. He says, like the first one, that the honey was evidently in part from the mountain laurel, the so-called rhododendron, of which there is an abundance in the mountain ridges and ravines. I have seen bees sucking the flowers in dry weather in the latter part of July, when there was little if any other pasturage for them. I have kept bees some ten years, but have so far got no "poison honey."

Old Fork, N. C., July 25.

[This is quite in accord with the reports we received years ago. While the honey may not be poisonous under some circumstances, and to some persons, it certainly is poisonous under *other* circumstances and to *other* persons. It is well known that some people have greater power to resist effects of certain drugs than others. It is possible that Prof. Cook can eat some of the poisonous honeys without any bad effects. It was decided years ago, in our columns at least, that the riper these honeys the less the effect upon the human system. These cases mentioned in this letter, wherein there was loss of vision, a pricking sensation, and vomiting, show the effect of poison and not of ordinary bad or unripe honey.—ED.]

NOTES ON SWARMING.

SOME OF THE DIFFICULTIES.

By G. C. Greiner.

The swarming season, with its various trials and tribulations, has again passed by. Among the mishaps was a tumble which I took when trying to hive a swarm some fourteen or sixteen feet from the ground. The ladder slipped in such a way that I was thrown right among the cluster, but was fortunate enough to stick to the ladder as the bees stuck to me. A few dozen stings were all the inconvenience I suffered in the affair.

Not so fortunate was a friend who lives a few miles from here. In trying to hive a swarm nearly on top of an eighteen-foot ladder, he had the hiving-box in one hand, and, reaching with the other to shake off the swarm, the ladder turned over, precipitating him head first through the tree on to the ground. A badly sprained shoulder and nearly broken wrist was the result, which disabled him from doing any work for some days, and he is still suffering from the effects of that fall.

The past swarming season has brought some peculiar features to our notice. Bees have swarmed quite freely—uncommonly so—this year. Every thing from strong to medium has sent out a second swarm. Even some weaker ones, from which we could hardly expect any swarms, have followed suit. Many of them (I believe I am safe to say that more than one-half of the 45 or 50 swarms which I hived) swarmed with superseding queens—not only one or two to each swarm, but anywhere from two to five or six; and in many instances the old fertile queen would be with them too. In two cases I have seen a laying queen enter the hive and then picked (two out of one and four out of the other) virgin queens from the hive-entering swarms. I had occasion to look for a comb of brood with a capped queen-cell. On opening a hive from which a first swarm had just issued, I found a dozen or more cells in the different stages of hatching. Some queens had already emerged; others about ready to raise the little cover, and others just beginning to gnaw the cappings. Undoubtedly this young swarm had, like many others, a good supply of virgin queens.

Many of the young first swarms did not behave in the usual way.

It is a very simple and easy matter to hive a normal swarm. After issuing, and having a short playspell in the air, they will soon find a place to alight, form a solid, quiet cluster in a few minutes more, and, when hived, enter the hive, seemingly thankful that a home has been provided for them, and all is well. How different this year! They remained on the wing for a long time; would try to alight in one place; take wing again, and try another; and when they finally did cluster it was not with the quietude and contentment which we are accustomed to see with normal swarms. Besides, they would cluster in irregular shapes, something like our illustrations, Nos. 1. and 2. When hived, in being shaken in front of the hive many would again take wing, fly back to the place where they had clustered, or around the hive in a suspicious way, showing plainly that every thing was not to their satisfaction. When at last they had entered the hive, which generally required a great amount of coaxing and driving, they would stay only a few minutes, then run out on the alighting-board, or up and down the front of the hive, one after another; take wing until the whole swarm would be in the air again, to have the same operation performed a second time.

G. C. GREINER'S METHOD OF HIVING SWARMS.

We generally suppose that, when swarms act in this way, their queens have failed to enter the hive, and are somewhere among the bees on the outside. This is not always the cause of their contrariness. I have repeatedly seen queens enter the hive with the bees, and felt somewhat relieved on account of it, when, soon after, I had to be disappointed as described.

If one swarm alone causes us trouble of this

kind we can get along very well, although it is not pleasant to be obliged to do the same work over and over again; but when one or more swarms issue at the same time we are at work with the first, the matter becomes somewhat complicated. I had a swarm out about 8 o'clock A. M., which acted very much in this stubborn way; and when it left the hive after having been hived the second time, two others came out and united with the first one in the air. It took them a long time to cluster, first here and then there; but at last they managed to string along on a limb five or six feet long. I had to hive them in two sections by brushing the bees aside and cutting the limb through the middle. This worked very well, and I began to flatter myself concerning my success, when, to my annoyance, they again showed signs of restlessness and dissatisfaction. Just then another swarm came out; and before this was fairly in the air a fifth one started. Of course, the one just hived, already a triple swarm, could not resist the temptation to join the others in their frolic. This made five strong swarms in the air at the same time. I have been among bees for twenty years, but never experienced such a display of flying bees before. Their roaring was almost deafening, and the air seemed to vibrate from the action of the many thousand wings. They remained in the air for nearly two hours. Sometimes they would try to alight in three or four places at a time, then disband again and have another fly, until late in the afternoon, when they clustered like Fig. 2; and the way I hived them, making two swarms of the five, is shown in Fig. 3. The smaller part of the cluster was hived first by holding the hiving-box under the same, and, with a large turkey feather, cut or detached them from their support. The box was then hung right to the place which the swarm had occupied only a few seconds before; and in a short time all the bees that had dropped in the operation, and were flying, had quietly settled in and on the outside of the box. The hiving was then an easy job, being late in the day; and the bees, undoubtedly tired of their jubilee, took to the offered hive quite readily, and remained. The other part, which had hardly noticed the separation, was treated in nearly the same way and with the same result.

If the production of honey, and not increase of colonies, is our aim, it does not pay to hive strong or even very strong swarms separate. Nothing but extra strong, or, better, enormously strong, such as we get by hiving two or more together, are profitable. If the five above-mentioned swarms had occupied five hives, the chance to receive section honey would have been greatly reduced. I have a number of single swarms which I considered, at the time of hiving, sufficiently strong to work in supers, that have not made any surplus at all, while others have made a little. From the smaller part of the united five I have taken 48 one-pound sections, and from the larger 72, all perfect, finished sections of first-class basswood honey, most of them overweight on account of their being so completely filled. Besides, they have now on their hives a considerable amount of unfinished and drawn-out sections—just the thing for the buckwheat flow, which we expect soon. All this work has been accomplished inside of two weeks, the result of hives full of bees.

When swarms unite in the air, or when clustering, they do not always show an entirely friendly disposition toward each other while and after being hived. I have noticed in a number of cases little piles of dead and dying bees in front of the hive, soon after hiving. There were not as many of them as we might expect if one swarm had annihilated the other, but a sufficient quantity to show that it took quite a little fighting to get acquainted.

Balled virgin queens in front of the hives, where united swarms had been hived, were also very frequent occurrences. In walking along in front of these swarms I have seen at two hives out of five these little balls, and as many as three at one stand.

The basswood-honey flow was all we could wish for. The dry spell when the buds first opened reduced the period of honey secretion a number of days, may be a week; but the bees made up the shortage after they began work.

Naples, N. Y., July 25.

[I want to emphasize especially your point, to the effect that there is an advantage in having one or more swarms together for the production of honey. I believe one of the follies of present bee-keeping is the fussing away with colonies that are too small. Our big colonies will store more than double as much honey as the combined yield of two colonies of half strength. And then, too, the big colony takes less manipulation, and is decidedly less inclined to swarm.—ED.]

THE BOARDMAN FEEDER, AND DROUTH AND NO HONEY IN ARKANSAS.

The Boardman feeders ordered came promptly to hand, and on trial I find they work like a charm. There is but little trouble in feeding by his plan. But it gives me the blues somewhat to see in last GLEANINGS that Dr. Miller has taken as many as five supers from some of his colonies by the middle of July, when at this date (Aug. 4) I have not even so much as one sealed section from my apiary of 40 colonies. The same drouth in the honey-flow is in all this section of country, so far as I can hear from. While Dr. Miller was taking off his fifth super I was feeding mine to keep them alive. Well, I shall not grumble. May be my time will come next year. J. H. MCCARGO.

Danville, Ark., Aug. 4.

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TO become acquainted with a person of evident refinement, having a knowledge of the accomplishments of the day, and to find that person a lunatic, gives a shock of pain; and when that person is a beautiful maiden, created but a little lower than an angel, we would tear away the fiendish mask that hides the soul divine, and cast it to its appropriate belongings with the swine.

With feelings akin to these, only intensified by relationship and love, Mr. and Mrs. Buell and Fred had but little relish for their noonday lunch. A few morsels sufficed for Fred, and he hastened to the wharf to prepare the boat for the two miles' journey to Dawson's.

Once upon the water, the genial sky, balmy air, and the easy motion of the boat, had their pleasing effect, while, to cheer and encourage, every little wavelet smiled upon them with sparkles of sunshine. But they could not partake of the joys that nature tried to impart, for they were on their way to a house of affliction, and their minds were kept upon somber thoughts by Alfaretta repeating at long intervals, like the dread tolling of a bell, "Dead—dead."

Fred bent to the oars, and sent the boat skimming rapidly down stream. Upon rounding the point above Dawson's, and when the cabin came into view, there was some stir of men visible around it; and when the boat drew up to the little wharf the Dawson urchins and dogs came tearing down the gentle slope, and it seemed that a chorus of shrill voices shouted, "Dad's dead! dad's dead!"

"Dead, dead," echoed Alfaretta.

The news the urchins were so ready to impart, though not unexpected, had a depressing effect upon Fred. Mr. Buell stepped upon the wharf, and, giving his hand to Mrs. Buell, aided her to land. His invitation to Fred, to accompany them, was unheeded for a moment; but, soon recovering himself, he apologized, and said, "No, I will stay with the boat and Alfaretta until you return; but you know, Mr. Buell, that any aid I can render will be cheerfully given."

"From the number of neighbors here," said Mr. Buell, "I think there is aid enough;" and they passed along to the house.

Mrs. Dawson was entertaining several neighboring women in the cabin with an account of her trials during the past few days. When her attention was called to the new arrivals she met them with a quick nervous stride, and exclaimed boisterously, "Wall, I declar'! ef you stuck-up folks aint come here tu! didn't know's yany of our neighbors cared fur us, either dead or alive; but seein' as tu how dad had tu up an die, all the neighbors seem to be mighty interested."

"Certainly, Mrs. Dawson," said Mr. Buell, in a conciliatory tone; "when a neighbor is sick, or dies, we know the family is in deep trouble; and all of your neighbors wish to give you aid and consolation—that is why we are here."

"Certainly," said Mrs. Dawson, in a mimicking tone, and with a little bob of courtesy; "but ef yeed a come her yisterday, when the old man war a rarin about McBurger's ghost, it would a ben more consolin'. As fur as the trouble is concerned, he's dead, an' the trouble is ended—leastwise as fur as this speer is concerned."

"It must be a great solace at such a time as this to be so reconciled to your loss," said Mrs. Buell.

"Loss—loss!" replied Mrs. Dawson. "Wall, now, d'y' suppose I've had ter knuckle under his fist, and be knocked around this yer cabin, an' half fed fur the last ten years, fur fun? Yes, he war a bad man, an' has fleed from justice mor'n onst, an' I would a fleed from him but fur the kids' sake. No, my purty mom, it aint loss fur us—it's liberty;" and a tear actually shone in the eye of the woman as she realized her freedom.

There was doubtless love in her heart at one time, but now it was dead.

Mr. and Mrs. Buell could hardly give consolation under such circumstances. Any reference to the Deity or religion was met with scoffing. Mr. Buell knew, however, from the teardrop, and her fidelity to her children, that there was under this uncouth exterior a chord that could be attuned to a better life; and, though he had been rudely received to-day, he resolved at the first opportunity to put into

operation his plan of rescue; and, unbeknown to him, that opportunity was then and there shaping itself. The neighbors were arranging for the burial; and as there was no minister of the gospel within twenty miles, some were in favor of dispensing with burial services altogether; but the majority, with true American spirit, wished to see things done decently and in accordance with civilized usages. Therefore Mr. Buell was asked to come on the morrow and conduct the services. This he consented to do, and, after spending an hour about the cabin, Mr. and Mrs. Buell returned to the boat. Mrs. Dawson followed to the wharf, and, upon seeing Fred, she exclaimed, in evident surprise, "Wall, I declar' agin! ef hyar aint that goslin young feller, tu! never spected tu see you agin —spected you'd be in the bottom of the river with McBurger. Yer a favorite of Providence, sartin! Mebby that's yer pooty gardeen angel thar. Stick tu her, young feller, fur gardeen angels don't cum a floutin' around everywhere."

Fred blushed, and was about to make a reply when Alfaretta arose, and, pointing her walking-stick wand toward the house, said in that weird tone she alone could use —"Dead."

"Of course, he's dead," said Mrs. Dawson.

"Repent!" said Alfaretta.

"Wall, now, gardeen angel, ye'r struck another tune, an'—"

"Repent!" again said the voice.

"Wall, now, see hyar—"

"Repent!" came again from Alfaretta.

"Now, by the—"

"Repent!" echoed again, as if from above.

Mrs. Dawson, as though in anger, turned abruptly from the wharf; and as she hastened toward her cabin she heard the words, "Doom, doom," from the still erect Alfaretta.

Mrs. Dawson, though a rude woman, knew the meaning and the need of repentance; but Mr. Buell, or a minister of the gospel, never would have impressed the fact upon her in conversation as strongly as the repeating by Alfaretta, in that place, at that moment, and in that way, the simple word "repent;" and, though she stormed about crazy folks being allowed to mingle with "decent" people, "repent" and "doom" were to haunt her soul for days.

Our friends were now free to depart without the formalities of a good-by. For some time Mr. Buell and Fred rowed up the river in silence. Though the current was not strong, the labor with four in the boat was considerable; and when about half their journey had been covered they pulled into a little cove under some cottonwood-trees, for a rest.

"How strongly impressed upon my mind," said Mr. Buell, as he wiped the perspiration from his forehead, "is the fact that every man is to a great degree the architect of his own destiny! Here this man Dawson came to maturity with a knowledge of good and evil; and I claim that it makes no difference how degraded a person may be, in this civilized age he has every-day promptings, and even cordial invitations, which, if listened to and followed, would make him as one of the children of light. Faith, hope, and charity, inscribed in any person's heart, lead to a growth that 'height nor depth nor any other creature' can stay. Why!" said Mr. Buell, with enthusiasm, "it seems to me that a truly benevolent soul is a world in magnitude. But, behold the Dawsons—lust, greed, brutality, nothing but groveling swine, where there might have been angels."

"My chief impression," said Mrs. Buell, "is

that it would take an immense amount of preaching and example to change the current for the better in the life of Mrs. Dawson. She has evidently led a wretched life, and all of the sweetness of character, if she ever had any, has been driven out. The question is, Can such a woman be reformed?"

"While it would be hard to reach the better life of Mrs. Dawson directly," said Fred, "it might possibly be reached through her chil-

dren: for from her remarks she has some love for them."

"That is just to the purpose," said Mr. Buell. "I shall consider the matter carefully to-morrow at the funeral; and if I feel warranted in doing so I will call a neighborhood meeting for next Sunday; and should I do so, Fred, I shall need your aid."

"Good! good!" exclaimed Fred, with enthusiasm. "I shall make a supreme effort to be with you. I would go with you to-morrow; but I have so much work that must be done immediately with the bees that I can not spare a minute during working hours."

Mrs. Buell here reminded the oarsmen that it was nearing sunset, and that they had better be moving toward home. Mr. Buell and Fred accordingly plied the oars, while Alfaretta, for-

getting the somber words she had been repeating, now gave voice in a more joyful tone to her favorite song,

"My lover is on the sea."

At the Buell wharf Fred bade his friends good-night and continued his journey up the river to the Ghering ranch. At break of day on Monday morning Fred was out upon the chalk bluff making calculations as to what should be done and how to do it. The bee-keeper often finds enough work before him for two or three men to do, and only himself to do it. Fred found himself in that situation; but, not halting between the confusion of various things and doing nothing, he set himself to the work nearest in hand, and, taking the mattock, he proceeded to enlarge the niche or path along the face of the bluff. He worked with energy at this, and in a few hours made it of sufficient width to enable him to carry to and fro the hives and implements needed in transferring. The hives that had lain so long in the hot sun at the McBurger ranch needed much renailing; "and now," said Fred aloud, "the crying need is a good stout work-bench."

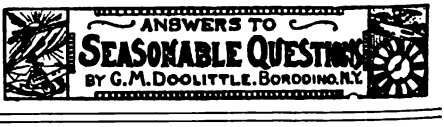
"I should say the crying need is for your bees to haf more respect for visitors, and fly the other way ofer," said Mr. Ghering, as he edged his way timidly along the cottonwoods.

"Oh! the bees are not flying around much this forenoon; and they are very quiet," explained Fred. "Just wait until I get them all up here—what a glorious sight you will see! By the way, Mr. Ghering, there are two small straight cottonwoods in that cluster over there. I should like to make them into a work-bench. You furnish the material, and I will do the work, and we will own it in partnership."

"That it is right, Fred; shust suit yourself apout it; but I don't believe I shall vork the bench much out here; those bees don't like me von little bit."

Now, Fred Anderson was not a nervous young man, as we have already seen; but he had the usual amount of mischief in his make-up, and he induced Mr. Ghering further and further from the sheltering cottonwoods. The bees that Fred had moved from the deserted ranch were but a few feet away; and in his movements near them Fred accidentally (?) dropped his mattock upon one of them.

Mr. Ghering was wearing a soft black-felt hat, well pulled down over his head; but there was a small hole in the apex of the crown. One bee seemed to think that the hole had something to do with the disturbance of th hive, and was venting its wrath upon it. A dozen more, attracted by the aroma of its sting, settled upon the same hole—entered, and commenced operations upon Mr. Ghering's scalp.



PURITY VS. GOOD WORKERS.

Question.—I understand that you are selling queens and bees. Do you guarantee your stock to be pure? or is not purity of stock the greatest essential in bees?

Answer.—Much has been said in the years that are past about a standard of purity for our bees; and some of us have often been led to ask ourselves the question, "Can we adopt a standard of purity that will always secure to us the best working qualities in our bees?" We can

see that it would be easy for those who follow nothing but queen-breeding as a business to adopt a standard of purity, or secure something which would be called "thoroughbred" at least; but for the rank and file of honey-producers to adopt the same standard would be quite another thing. The workers from different queens of the same color and general appearance show a vast difference as to working qualities—at least, such is my experience. In the spring of 1877, while changing a colony from one hive to another I noticed a fine-looking orange-colored queen, with the workers all well marked. A neighbor, who kept several colonies of bees, was present, and remarked that he would prefer a darker-colored queen for business, and I agreed with his decision. No further notice was taken of the colony than of others till about June 25th, when the bees were nearly through swarming. This one had not swarmed, but had 60 lbs. of section honey nearly ready to come off. July 3d they gave a fine swarm which was hived. Although the parent colony had none of its queen-cells cut, it never offered to swarm again; and the result, at the end of the season, was 195 lbs. of section honey from the parent, and 114 lbs. from the swarm, or 309 lbs. from the old colony in the spring. The queen reared in the old hive was very much like her mother, and both colonies wintered with the loss of but very few bees, and consumed comparatively little honey, according to many others. The next season they showed the same disposition not to swarm till late; and from the colony with the old queen I obtained 151 lbs. of section honey, while there were but few other colonies that gave over 100 lbs. I then reared nearly all of my queens from this old one, as long as she lived, and found the majority of them very prolific layers, and their workers great honey-gatherers. After she died I began getting queens from other parties who reported good honey-yields through our bee-papers, to cross with mine, as in-and-in breeding is generally considered injurious to bees. Many of these queens did not prove to be equal to my own, and were soon superseded. Some proved to be good, and were used in connection with the above strain, which I have kept largely in the majority ever since. By this mode of crossing I have bred up a strain of bees which pleases me; and after years of trial I believe them to be second to none as honey-gatherers, although for their purity I can give no guarantee, neither do I think it necessary to guarantee any positive purity of any stock, except that it be good in every spot and place where you wish goodness. I am still striving to advance further along the honey-gathering line, so each year finds me securing queens from the most approved sources, although it is seldom I find one I care to use as a breeder; but as this "seldom one" is of great value, I consider myself well paid for all my trouble. There is nothing in all the realm of bee-keeping that gives me more pleasure than does this work of improvement of stock for its honey-gathering qualities; and as we have several of our most prominent apiarists at work along this line, if perfection can be attained with bees I doubt not that America will stand at the head one of these days. But I doubt about that standing "at the head" being for *purity of stock.*

UNITING BEES.

Question.—Will you please tell us in GLEANINGS how to unite two or more weak colonies so that they may be strong enough for winter? I have some small colonies which I wish to put together this fall; and as I am only a beginner in bee-keeping, any advice would be acceptable.

Answer.—The uniting of two or more weak colonies of bees for winter is the proper thing to do; for two weak colonies, kept separate, will consume nearly twice the stores that both together would united, and very likely perish before spring; while, if put together, they would winter as well as any large colony. The way to proceed is as follows: If one of the queens is known to be feeble or inferior, hunt her out and kill her, so that the best queen may survive; otherwise pay no attention to the queens, for one of them will soon be killed after uniting. Having the queen matter disposed of, go to the colonies you wish to unite, and blow smoke quite freely in at the entrance, pounding on the top of the hive at the same time with the doubled-up fist. When both have been treated in this way, wait a moment or two for the bees to fill themselves with honey, when one is to be carried to where the other stands, and both opened. Now select out the combs from both hives which contain the most honey and come the nearest to filling the frames, setting them in one hive. In thus setting in, it is always best to alternate the frames, whereby the bees are so mixed up that they have no desire to fight, for each bee touched by another is a stranger. After the hive is filled, arrange the quilt or honey-board and put on the cover. Next put a wide board or sheet in front of the hive, leading up to the entrance, and proceed to shake the bees off the remaining frames, taking first a frame from one hive and then one from the other, thus mixing the bees as before. After all are in, set a board up against the front of the hive, sloping over the entrance, so that the next time the bees fly they will be compelled to fly against it or crawl out around it, thus causing them to mark their location anew, so they will not be as liable to return to their old place. The mixing of them and causing them to fill with honey has a tendency to cause the bees to look after their location; but the board helps also in this direction. Also remove all relics of the old hive, so there will be no homelike look about their old location to entice them back.

Put the remaining combs away in some safe place for the next season's use, and the work is done. If this uniting is done near sunset, and the bees are caused to fill themselves thoroughly with honey, very few will fly away in the uniting process.

Heads of Grain from Different Fields

A HIVE ON SCALES; A BIG RECORD—300 LBS. NET GAIN IN 26 DAYS, 29 POUNDS GAIN IN ONE DAY.

Inclosed I send you a record of a colony of bees that I had on scales during basswood bloom, from June 20, in evening, to July 16, in evening. The record shows the weight every morning and evening, also the gain during day and loss during night. This colony is all the product of one queen, and I took two frames of hatching brood from it about June 1, to help other weak swarms. Can any of you beat it?

RECORD OF COLONY OF BEES FROM JUNE 20, IN EVENING, TO JULY 16, IN EVENING.

Date.	Morning.	Extracted.	Evening.	Gain during day.	Loss during night.
June 20			84		1
21	83		89¼	6¼	1
22	88¼		96½	8¼	1½
23	95		102	7	¾
24	101¼		105¾	4¾	1
	Put on 2d top story, 15 lbs.				
25	120		126	6	¾
26	125¼		130½	5¼	¾
27	129¾		138	8¼	1
28	137		145½	8½	1½
29	144		156¾	12½	1¾
30	154¾	19¾	153½	18½	1¾
July 1	151¾	7¾	161½	17½	2
2	159½	19¾	161¾	22	2½
3	159¾		177	17¾	2½
4	174½		189¾	15¾	3
5	186¾	40	162	15¾	2
6	160		177½	17½	2
7	175½		192	16½	2½
8	189½	57	146	13¾	2¾
9	143¼		164	20¾	2¼
10	161¾		188	26¾	2½
11	185½	35½	179	29	2¼
12	176¾		191½	14¾	2
13	189½	50½	153¾	14¾	1¾
14	152		164	12	1¼
15	162¾		169½	6¾	1¼
16	168¼		170	1¾	

G. W. WILSON.

Kickapoo, Wis., Aug. 5.

[This is a splendid record, and perhaps breaks all others; but if my memory serves me correctly, A. E. Manum, of Bristol, Vt., had a colony on scales that showed as one day's gain something over 30 lbs. The sum total, however, I think, was not quite equal to yours. I have tried to find this record in old back numbers; but after quite a search I fail to find it.—ED.]

BANANA OIL.

I noticed the article in last issue in regard to banana oil, and it called to mind that some time since I boarded at a place where the lady of the house often used banana extract to flavor puddings, and it always smelled so much like bee-poison that I always spoke of it as "bee-sting" flavoring. D. R. KEYES.

Wewahitchka, Fla., Aug. 8.

[No doubt why the bees stung so in the case referred to was because the odor of the oil was so near like bee-sting poison. This odor always excites bees.—ED.]

BEES SWARMING IN AUGUST; HIVING ON STARTERS A FAILURE.

I am having something this year that I never had before in my experience in bee-keeping; that is, swarming in August. I have had bees store a heavy crop of honey after Aug. 1st, but in no case did they ever offer to swarm. This made the work of handling a late crop much pleasanter. Swarms issue now every day, with very little honey coming in; but I notice that it is only those colonies having old clipped queens that come out. My method of dealing with them is to kill the queens and let the swarm go back. They come out before any queen-cells are sealed, and I think that, by the time the young queens hatch, a change in the weather (it is now extremely hot) may prevent them from swarming, and I shall have younger and better queens in those hives. Our honey-crop thus far has been light, but it has been an excellent season for building up and getting bees in shape for another season. At one of my yards there has been an abundance of sweet clover in bloom all summer; but as yet I have noticed no surplus from it. I think it is like any other clover, in that it may sometimes furnish bloom without much nectar.

This spring I tried the experiment of hiving a few swarms on narrow starters in contracted brood-chambers. This was done just before basswood opened. In every case it cost me about one super of honey, and the bees built some drone comb besides. I have the best success in hiving on empty combs, or part empty combs and part full sheets of foundation.

Browntown, Wis., Aug. 12. H. LATHROP.

PHELPS' HONEY-PACKAGE CRITICISED; HOW TO DO UP COMB HONEY SECURELY IN PAPER.

I can not agree with you that Mr. Phelps' "comb-honey packet is one of the best that has been devised." Such a package is too flimsy. I tell you, it does not require so much time to do up a package neatly, and just as securely, in paper. I buy the wrapping-paper used by hardware dealers. It is tough, elastic, and will not let honey go through, even if a package should be broken. In wrapping two or three sections, tear the paper so the folding will come on the ends of the sections. If more than three sections are put in one package, I take a clean separator and set the sections on it, and mark it with my pocket-knife along the edge of the last section, and break off the end. I know by practice about how much paper to tear from

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the roll for any given package. The package must be folded at the sides of the sections, but I have never had complaints of its breaking the honey. Be sure to use good strong twine, and tie tightly. I tie by making a loop in one end and carrying the twine around the package, and passing the other end through the loop. By this method you can draw the twine tight.

J. Q. A. MULFORD.

Lebanon, O., Aug. 13, 1896.

[While your plans of wrapping up sections are good, I still like the basket-splint method proposed by Mr. Phelps; and by it the average bee-keeper could, I think, make a stronger package.—ED.]

SWEET CLOVER.

Our crop of honey has been very good so far, mostly from sweet clover. Bees won't touch alfalfa till sweet clover has done blossoming. I find quite a change in the minds of some of my neighbors. They are beginning to think sweet clover is a pretty good thing after all. I have sold some seed to one, and two others are talking of sowing some. It will grow on our poorest land, and make a crop, and choke out all weeds we have in this country, including sandburrs and cockle-burrs. If it were of no other use it would pay well as a fertilizer. But it is a splendid hay crop, and, in my opinion, there is nothing better for honey. I have about ten acres seeded down for next year. I put several acres in the corn at the last cultivating, and have a nice stand. You see, by putting it in the corn we have the crop the next season. If sown in the fall it will come up early the next spring, and make a good growth that season, but not seed. I always sow the seed with the hull on.

JOSEPH SHAW.

Strong City, Kan., Aug. 12.

SWEET CLOVER IN NEBRASKA; ITS HAY EQUAL TO THAT OF ALFALFA.

Sweet clover is one of the grandest plants in existence, and it flourishes here with almost tropical luxuriance. I have been familiar with the plant from childhood, but had seen none for years until we found it here. It is supposed to have gained a foothold here four years ago from some seed dropped around a camp of emigrants. We protected and fenced the spot, and helped it to spread. We give it no soil preparation nor cultivation, as it needs none. We scatter it along the roadsides and in grass lands—the rain does the rest. It does not trouble cultivated fields. It is a resister of drouth, and for hay is about equal to alfalfa. Aside from the above valuable features it possesses valuable medicinal properties, some of which I will give you at another time. As to the quality of the honey it yields, I am not prepared to speak so positively; but I imagine I shall have to learn to like it. I can tell better later.

Cleome and the Simpson honey-plant are native here, but *not Cleome pungens*. That is an escape from cultivation near Mt. Carmel, Ill., and is not very widely distributed. Ours is *Cleome integrifolia*—just as good as and in some respects better than the former, from the fact that ours yields honey from very early in the morning till 11 and 12 o'clock; and unless it is very hot and dry, the bees work on it until quitting-time at night.

MRS. L. E. R. LAMBRIGGER.

Niobrara, Neb.

SWEET CLOVER; ITS VALUE TO THE FARMER.

We clip the following from a recent issue of the *Country Gentleman:*

It first grew on our land (Scoharie, N. Y.) in spots, as the seed was washed on from the creek overflowing the land; then as it grew up, and the land was plowed for corn, it was plainly seen that the corn would be much better than where there was none growing. I considered it then advisable to gather some of the seed as it grew wild, and seed it upon part of a piece of rye in the spring, as you would with ordinary clover.

The result was, in the fall after the rye was off the ground there was a very rich growth of about two feet high, a solid mat of it that it was almost impossible for a man to walk through. In the spring it was left to grow about up to the horses' knees, and in due time for corn-planting, and then was turned under by having a sharp share on the plow to cut the roots well, and a chain attached to the plow to drag under completely the green growth. It was perfectly subdued, and the corn on that four acres of a 12-acre lot was much heavier, and a better, healthier color than on the remaining ground where red clover was seeded and there was, only about six inches growth to turn under.

I would advise all farmers, in preparing ground for a good corn crop, to seed their ground with this clover, either with winter grain or spring grain. It will yield much better corn crops, and will enrich their ground more and more each year. There is no danger of the seed lying in the ground and coming up another year, and it quickly dies after turning under. I think it is worth five times the quantity of common clover turned under. It also acts as a subsoiler, as the roots will root deep, and loosen the subsoil. I will gather a good quantity of the seed this year to use for another season. It is the cheapest manure that can be used, and is equal to many more loads of manure to the acre than any farmer puts on his land. The seed should be hulled and cleaned the same as other clover seed is prepared. For hay for cattle it is good cut early before it gets stalky, and two and three crops can be cut from it in that state, and then it dies off.

The following is clipped from the *Evening News*, Saginaw, Mich.:

Nicholas J. Van Patten, a bee-keeper, of Vassar Mich., got out of bed partly dressed on the morning of Aug. 8 to drive a calf out of the yard. The calf had knocked six hives of bees over. They completely covered Van Patten's body, and stung him terribly. Van Patten ran into the house, and the family scraped a quart of bees from his head. He is in a critical condition.

[Dear friends, there is a moral to this little story. Bees and calves should each be placed so that they can not disturb each other. My impression is that the calf should have a good stout fence around it; and under circumstances like the above, one should be very careful about undertaking to mend matters without being well clothed. Very likely the whole mishap came about by a poor fence, a gate carelessly left open, or something of that sort.—ED.]

UNFINISHED SECTIONS NOT IN THE CENTER BUT IN THE OUTSIDE ROWS.

There seems to be but one opinion in regard to putting such sections back; and that is, to

place them in the center of the surplus arrangement. *But I shall beg to* take exceptions to this method. I use T supers in double-walled chaff hives. My method of using them is as follows: As soon as all the boxes are sealed except the outside ones, I remove all finished boxes, returning the ones on the outside row with sections having starters in the middle. The result is, that next time I remove boxes I find every box filled and capped at the same time. Now, I have tried both ways, and know that I get a full super of sealed honey as soon as I can one full, excepting the outside boxes with unfinished sections in the middle. The result is, that the bees commence working in all the boxes at the same time; and the next time I remove I find every box capped over at the same time. I have given both ways a thorough trial, so that I know whereof I speak. F. L. BRADLEY.

Charleston, Me., Aug. 3.

[There is no regular rule among bee-keepers as to where the unfinished sections shall be put. Much depends upon the season and the locality. If the bees need coaxing, and the colony is not strong, it is advisable to put them in the middle row. If the season starts out strong, and the colony is populous, then the outside rows should be used.—ED.]

MULTIPLE-EXIT BEE-ESCAPE NO ADVANTAGE OVER SINGLE.

When the Porters first introduced their escape I thought, like a great many others, that more escapes would be an improvement. I put four in one board, but the bees did not leave any quicker than with one. It seems to take the bees some time to find out that they are shut off from the brood-chamber; and until they discover the change they will not make any great effort to leave the super. I had the pleasure of sharing my room during the World's Fair convention with one of the Porters, together with the Larrabees, and we discussed the matter very thoroughly.

The idea is, not to give them plenty of room to get out, but to get them in such condition that they want to get out. They will reach this condition quicker if they are shut off from the brood-chamber entirely for a short time. A larger number of exits seem a detriment rather than a help, after they get started to leave. I am satisfied that all the bees in a super would leave in a few minutes through one escape if they wanted to get out.

I am devoting one hive entirely to experimenting on sugar feeding, and will let you know the result if I have time, although you may not want to publish what I find out.

Harvard, Ill. THOS. ELLIOTT.

DIAMETER OF CYLINDER FOR EXTRACTOR.

I notice in "Guide Book" that the cylinder of the extractor referred to is 18 in. diameter; would it not work as well if the cages were in a square of 9 in. (to take a standard frame)? This would require a cylinder of only 16 in. diameter, which reduces the size very greatly; the speed to be regulated by gearing at top.—S. SCARLETT, *Stafford, July 17.*

REPLY.—No, the extractor will not work so well if diameter of cylinder is less than 18 in., for the reasons given on page 77 of "Guide Book" (fourteenth edition). The farther you can get the face of the comb from the central spindle the more easily and efficiently is the honey extracted. If a drawing is made of the cages with a section of comb in position you will find the cells, with the exception of the central ones, at different angles to the radius of cylinder. When the angle becomes too great the honey on the outer edges of the comb, following line of rotation, is not extracted at all, and so much extra speed is required to extract even the other edge that the comb may be damaged. The nearer the walls of the cells are to being in a line with the radius, the more easily is the honey extracted.—ED.]—*British Bee Journal, July 23.*

WHITE HONEY IN THE MIDDLE OF AUGUST IN YORK STATE.

The bees are still gathering white honey, though buckwheat is in bloom. I shall need my honey-cans badly by the time they get here.

Kendaia, N Y., Aug. 12. C. J. BALDRIDGE.

No honey yet, but a good prospect for a crop from white aster. It is making a splendid growth, but won't bloom until Sept. 15. White clover is regaining what it lost the two last dry years. M. L. WILLIAMS.

Maysville, Ky., Aug. 15.

T. P. L., Md.—If you have honey coming in from crimson clover and buckwheat both at the same time, we do not see how it is possible for you to avoid having a mixture in your surplus. As a general rule, one follows the other; and by taking off the sections or extracting-combs at the right time there will will be no mixture.

T. G., Col.—From what you say, it is possible and even probable that the colony which you think has no queen, and which refuses to raise cells, has something that they *call* a queen—very likely a fertile worker. What you need to do is to get rid of the fertile worker first. A better way would be to scatter the bees and brood among your other colonies, and give up the idea of trying to make a colony direct.

J. N. P., Pa.—A house-apiary 9 x 12 would make you a nice building, well adapted to all

your requirements. Make it double-walled, oblong, four sides. The octagonal or round found is too expensive, and has no particular advantage. To make a house-apiary satisfactory, you should use therein regular outdoor hives. We send you an article written by F. A. Salisbury, and which appeared in these columns, p. 662, Sept. 1, 1895. Mr. Salisbury has a house-apiary, and it is the best we know of. We expect to put up a small building like it this fall at our out-yard.

THE BRITISH BEE-KEEPER'S GUIDE-BOOK.

THE 14th edition is out of this already popular bee-book, by Thos. Wm. Cowan, editor of the *British Bee Journal* and inventor of the Cowan extractor. Within 15 years 25,000 copies have been sold, and within a month 2000 copies of the new edition have been sold. So great has been the demand for it throughout all Europe that it is now published in French, German, Danish, Swedish, Spanish, and Russian. Of some of these, two or three editions have been published, and it is safe to say that no other bee-book is read in so many languages. The present edition has been thoroughly revised, enlarged, and a great portion entirely re-written. Old methods and implements have been stricken out, and new ones incorporated in their proper position. The special feature of this edition is the introduction of a large number of beautiful half-tone engravings representing various manipulations of the bees, and every thing is put so plainly that there is no chance for misunderstanding. I suppose the reason for the great popularity of this book is its small size and low price. It is condensed, and yet covers fully all essential details. The author, as nearly as I can discover, has made his book small, not by covering briefly every thing in bee-keeping, but by giving only the best plan or method in full, in his estimation, thus avoiding confusion to the beginner. The price of the book is the same as formerly; namely, 40c in paper, or 70c in cloth. It can be supplied from here.

BEES AND GRAPES; SHALL WE PLACE ALL OR A PART OF THE BLAME ON THE BEES?

YESTERDAY a neighbor stopped me and said he wished I could see how bees were working on his grapes. Half of his crop would be ruined by the bees, he thought. I mounted my bicycle, and in two or three minutes I found the vines where the bees were at work, and, sure enough, there was quite a few of them on and around the grapes. There were anywhere from one to a dozen grapes in a bunch, whose skins were partly opened or split, and the pulp in some of them was literally sucked dry by the delicate little tongues of the bees. I did not see the bees puncture the grapes, but an incision was made in some way; and whether by bird or insect, the bees made a bad finish by enlarging the gap and sucking the pulp dry. As soon as one bee had gotten its fill, another would take its place, and lick the pulp dry as far as its tongue would reach, then would crowd the slit a little wider open. I observed dozens and dozens of them doing this thing; and the elongating of the slit seemed to come about unintentionally on the part of the bee, for no bee would have sense enough to know that widening the slit would give it access to new pulp; but in the *effort* to reach fresh pulp the slit would very gradually open.

The grapes are what are called the "New York," and were just beginning to ripen. The skin is very delicate and thin. They look very much like the Delawares, and taste like them, but are much larger. I should say that at least half of the crop would be ruined by the bees, and *our* bees at that. It only remains for us to make good his loss in some way. So far I can not learn that the bees are or have been at work on any other varieties in town. They hardly ever molest our hardy Concords; and so far this season we can not see that they have touched our Niagaras or Delawares. I am a little surprised that the bees should make an onslaught on the New York, particularly as there is a little honey coming in from buckwheat and white clover.

Later.—In speaking of this matter with A. I. R., he was very sure the bees did not puncture or make the original incision — that some bird or insect had preceded them, and the bees simply followed it up. Birds, he said, would make a round hole and a slit starting from it; but I saw no grapes having any thing of this kind on them. While I was wondering how this slit could have started in the first place, one of our boys from the apiary, Fred, apparently divining my thoughts, said:

"You don't think the bees punctured those grapes?"

"N—n'no," said I, hesitating.

"I think those slits or openings in the grapes you saw were due to the remarkably warm and wet season we have been having. The pulp, or inside of the grape, was growing too fast for the skin, or covering; and the consequence is, it simply burst, leaving only a small slit."

"How do you know?" said I.

"Why, isn't it reasonable?"

"Yes, the most reasonable of any thing I have thought of so far."

And then he added:

"I have seen the grapes burst more this year

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than I ever did before; and I *know* it was because they grew too fast."

What the old man said to the boy actually happened to the grapes—"If you don't stop growing so fast you'll bust your skin."

This seems to me not only an easy but a practical explanation; and I do remember now that some of the slits on the sides of the grapes appear not to have been touched by any thing—just simply a mere burst. This remarkable growing year has made Nature do some things that she does not do ordinarily.

If this explanation is correct—and I believe it is—it removes at least part of the blame from the bees. If the grapes had not grown so fast, the bees would let them alone.

Perhaps some of our readers may think it bad policy to admit that bees may even work on grapes that have been punctured or opened by some cause. It is surely folly to try to maintain that they are always innocent; that they have never been known to go near grapes. While I do not believe the evidence, or facts, when carefully sifted, show that bees actually puncture grapes or any fruit, in fact, we must admit that they will work on damaged, decayed, or broken fruit.

B. TAYLOR—BEE-KEEPER, WRITER, AND INVENTOR.

LITTLE did I think, when we chronicled the death of Allen Pringle, in our last issue, that another bee-keeper and writer, equally prominent, would pass from among us. B. Taylor, of Forestville, Minn., after a long illness, passed peacefully away Sunday morning, Aug. 9th. He was one of the oldest bee-keepers in the ranks; and, although he worked and experimented with bees when those who are middle-aged were in their cradles, he worked quietly by himself.

The first that was known of him by the bee-keeping world was in 1890, at the Madison, Wisconsin, bee-keepers' convention, held in February of that year, where he told of his experience in handling and using divisible brood-chambers as early as 1865 (see GLEANINGS, page 168 for 1890). He subsequently wrote an article for GLEANINGS, telling of this hive (see page 324, 1890). Later he figured quite prominently at the North American convention at Keokuk, Ia. Shortly after, the editor of the *Review*, recognizing his real ability as a bee-keeper and writer, engaged him to write a series of articles for his journal. About this time, also, he began to write for several of the bee-papers, and B. Taylor sprang into prominence as one of the leaders of the country in apicultural progress. He was an inventor and an expert mechanic; and from him came several ingenious contrivances for managing and handling his pets, all or nearly all of which were of real worth. Among these I recall to mind particularly his comb-leveler—something the real value of which comb-honey producers are just beginning to learn. That it can be and has been the means of increasing the comb-honey crop, as Mr. Taylor first claimed for it, very few will deny.

Among his other other inventions were a swarm-catcher, several styles of brood-frames, and hives.

He had a beautiful home, an ideal location, and a finely equipped workshop. He was, therefore, in a position to put into execution whatever his fancy painted.

THE HONEY SEASON FOR THE UNITED STATES.

THE responses to the call in our last issue, for reports up to this time, have not been very heavy; but so far they go to show that the season is not as good as expected from the first reports. In Illinois Dr. Miller is the only one who reports a good season. All the rest give from poor to fair. Indiana seems to be universally poor. In Michigan there is only one who reports good, and all the rest show from fair to poor. This is a surprise, as we have had general reports of good seasons from that State. This can be accounted for only by the fact that those who order goods have a fair season, and so report; and those who do not order do not need the goods, and so of course do not write us. However, taking every thing into consideration, the season over the country has been better than the one of 1895. As to prices on comb honey, 12 cts. seems to be about a fair average. I shall be very glad to have our readers send in their reports, especially from those States that are so conspicuous by their entire absence, or have at most only one or two responses. In our next issue we shall then be enabled to give a fuller and more correct report. The fuller and more accurate these reports for the various States, the better we can gauge the price of honey; and so I hope that, between now and next issue, the postals will pour in by the scores.

The questions that are answered below are as follows:

CANADA.

1. Good; 2. Comb, 10 to 12; extracted, 6 to 7.
South Cayuga, Ont., Can. ISRAEL OVERHOLT.

FLORIDA.

1. Indifferent; 2. Comb, 10 to 12; extracted, 5.
Port Orange, Fla., Aug. 24. J. B. CASE.

1. Good; 2. Comb, 10; extracted, 5. These prices are net. L. K. SMITH.
Grant, Fla., Aug. 24.

ILLINOIS.

1. Poor—that is, the spring flow has been. It bids fair for a good flow from the yellow or fall bloom; 2. Do not know. C. M. THORNTON.
Osage, Ill., Aug. 24.

1. Fair; 2. Comb, 12 to 14; extracted, 6 to 8.
Pittsfield, Ill., Aug. 24. F. M. RUSE.

1. Indifferent. MRS. L. HARRISON.
Peoria, Ill., Aug. 21.

1. Very light; 2. Comb, 15; extracted, 9 to 10.
Plano, Ill., Aug. 19. J. C. WHEELER.

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1. Almost an entire failure; 2. Comb, 12½; extracted, none. A. Y. BALDWIN.
De Kalb, Ill., Aug. 24.

1. Excellent; 2. A little comb has been sold at from 12½ to 15. C. C. MILLER.
Marengo, Ill., Aug. 18.

1. Quite poor; 2. Not enough to know the price.
Limerick, Ill., Aug. 24. E. PICKUP.

1. Failure. DADANT & SON.
Hamilton, Ill.

INDIANA.

1. Poor, white clover killed by the '95 drouth; 2. Comb, 10 to 12; extracted, no market
N. Manchester, Ind., Aug. 23. F. S. COMSTOCK.

1. Poor; 2 Comb, 12½; extracted, no demand.
Nappanee, Ind., Aug. 24. LEVI A. RESSLER.

1. The poorest since 1875; not an ounce of surplus, 98 colonies. H. F. WINTER.
Bicknell, Ind., Aug. 19.

1. Very poor; 2. No honey to sell.
Spiceland, Ind., Aug. 25. L. V. MILLIKAN.

1. Poor; 2. Comb, 10; no market for extracted.
Etna Green, Ind., Aug. 23. WM. IDEN.

IOWA.

1. Good; 2. Comb, 12½ to 15; extracted, 7 to 10.
Mapleton, Ia., Aug. 24. C. E. CARHART & BRO.

1. Very poor. JAS. RALSTON.
Vinton, Ia., Aug. 21.

LOUISIANA.

1. Good; 2. Extracted, 9 to 10.
Loreauville, La., Aug. 24. J. W. K. SHAW & CO.

MAINE.

1. Extra good; 2. Comb, 18 to 20; no demand for extracted honey here. J. B. MASON.
Mechanic Falls, Me., Aug. 25.

MARYLAND.

1. A complete failure; 2. Comb, 15.
Hughesville, Md., Aug. 26. SAMUEL R. NEAVE.

MICHIGAN.

1. Fairly good; 2. Comb, 13 for best; extracted, 8 to 12 for best. F. PALMER.
Paris, Mich., Aug. 22.

1. Only fair; 2. Comb, 11; extracted, 6 to 7.
Filion, Mich., Aug. 24. I. S. TILT.

1. Poor; 2. Comb, 12½; extracted, 8.
Covert, Mich., Aug. 19. H. D. BURRELL.

1. Poor; 2. No honey on the market.
Pittsford, Mich., Aug. 24. GEO. H. DENMAN.

1. Poor; 2. Comb, 14 to 15; extracted, 6.
Dexter, Mich., Aug. 24. D. E. LANE.

MISSISSIPPI.

1. Failure. W. J. ALEXANDER.
Kuhn, Miss., Aug. 8.

MISSOURI.

1. Fair; 2. Comb, 12 to 14; no extracted here.
Holden, Mo., Aug. 13. J. M. MOORE.

1. Crop fair, 50 lbs. comb, 65 colonies; 2. Clover extracted, 9 to 10; sold 4 tons last winter; comb, country, 10; my crop, 15. JOHN C. STEWART.
Hopkins, Mo., Aug. 23.

1. Good; 2. Comb, 12½ to 15; extracted, 10.
Unionville, Mo., Aug. 20. E. F. QUIGLEY.

NEW HAMPSHIRE.

1. Indifferent; 2. Comb, 15; extracted, 6 to 8.
Wilton, N. H., Aug. 21. B. D. COOK.

NEW YORK.

1. A run of buckwheat honey is turning a poor season to fair; 2. Comb, 12; extracted, 5 to 6.
Sammonsville, N. Y., Aug. 24. C. STEWART.

1. Indifferent; 2. Comb, 14; extracted, 8 to 10.
Lowville, N. Y., Aug. 22. FRED H. LOUCKS.

1. Fair. WM. P. ABEL.
Vienna, N. Y., Aug. 25.

1. Good; 2. selling wholesale at $2.40 per 24-lb. single-tier case, assorted sections of buckwheat.
Northampton, N. Y., Aug. 24. PERCY ORTON.

1. Fair to indifferent; 2. Comb, 10 to 13; extracted, 6 to 9. J. W. PIERSON.
Union Springs, N. Y., Aug. 22.

1. Fair; 2. Fancy, 10; lowest I ever saw here.
Caton, N. Y., Aug. 20. R. A. TOBEY.

1. Good; 2. Comb, 12 to 14; extracted, 8 to 10.
Rock Valley, N. Y., Aug. 19. E. J. HAIGHT.

1. Good; 2. Comb, 15; extracted, 7 to 10.
Fayette, N. Y., Aug. 19. FRED. S. EWENS.

OHIO.

1. Poor—in fact, the very poorest I ever saw. I have large colonies now with not a pound of honey in the hive. CHAUNCEY REYNOLDS.
Fremont, O., Aug. 24.

1. Poor; 2. Comb, 14 to 15; extracted, 10.
Findlay, O., Aug. 21. D. C. ROUTZAN.

1. Light; 2. Comb, 12 to 15; extracted, 8 to 12.
Tiffin, O. J. F. MOORE.

1. Light; 2. Comb, 10.
Deshler, O., Aug. 21. THOMAS OBERLITNER.

1. Indifferent; 2. Comb, 14 to 15.
East Townsend, O., Aug. 20. H. R. BOARDMAN.

PENNSYLVANIA.

1. Very bad; 2. Comb, 18 to 20.
Spring City, Pa., Aug. 22. GEO. CULLUM.

1. Good; 2. Comb, 15; extracted, 8.
Franklin, Pa., Aug. 20. ED. JOLLEY.

TENNESSEE.

1. Fair; 2. Comb, 12 to 15.
Bunch, Tenn., Aug. 25. JOSEPH STEPHENSON.

1. Indifferent; 2. Comb, 12½ to 13½; extracted, 8½ to 10. T. H. LEINART.
Clinton, Tenn., Aug. 24.

1. Good; 2. Extracted, 7 to 7½; comb, 10 to 12.
Bristol, Tenn., Aug. 20. M. D. ANDES.

VERMONT.

1. Very good; 2. Comb, 18; extracted, 10.
Barre, Vt., Aug. 24. H. W. SCOTT.

1. Good; 2. 12 to 14; extracted, 8 to 10.
Middlebury, Vt., Aug. 22. J. E. CRANE.

1. The best in several years; 2. Comb, 10 to 12.
Fair Haven, Vt., Aug. 19. A. J. GIBBS.

VIRGINIA.

1. Failure. F. A. FEUCHTENBERGER.
Miller School, Va., Aug. 24.

1. Very poor; 2. 12 to 15. R. F. RITCHIE.
Rumford, Va., Aug. 20.

WASHINGTON, D. C.

1. Failure; 2. Comb, 12 to 15; best would bring 20.
Washington, D. C., Aug. 24. W. W. CONNER.

WEST VIRGINIA.

1. Failure; 2. Comb, 18; extracted, 12.
Salama, W. Va., Aug. 20. M. WILKINSON.

THE following, received from the General Manager of the Bee-keepers' Union, will explain itself:

I have submitted for decision by the Advisory Board of the National Bee-keepers' Union as to whether a vote on amalgamation shall now be called for as advised in the bee-periodicals. The result is that but one of the Board is in favor of holding a special election for submitting the question. It will, therefore, have to lie over until the annual election in January next.

THOMAS G. NEWMAN, General Manager.
San Diego, Cal., Aug. 20.

C. K. HORRIE & CO., commission merchants, of Chicago, Illinois, are once more soliciting consignments of honey. They were the firm concerning whom so many complaints were received from honey-producers last season—so much so that the editors of at least three bee-papers put in a word of caution.

THE editor of the *Review* suggests that we give the readers of GLEANINGS a photographic view of our basswood yard. It would be a little difficult to show it up well, but I will make a trial of it, anyhow.

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OUR HOMES.

Oh how I love thy law!—PSALM 119:97.

A little boy whom we will call Johnny was getting ready for Sunday-school. His face was thoroughly washed, and his hair combed. He had on his Sunday-school clothes, clean cuffs, and collar; and all together he was, so far as outward looks are concerned, a boy to rejoice any mother's heart. Just before starting out for school, however, Johnny went out without letting his mother know any thing about it, and slipped some marbles from his every-day pocket into the pocket in his Sunday suit. That was not a very bad thing for a small boy to do; but it was just one little step out of the way. He knew it was not exactly the thing to do or he would not have taken pains that his mother should know nothing about it.

On his way to school he crossed the common. Just ahead of him was a bad boy named Sam, and very few mothers permitted their boys to have any thing to do with him if they knew it. But Sam was an expert marble-player. He had an extra nice marble, different from any other marble in the town; and with this marble he had a knack of "shooting," exciting not only the admiration but envy of all the other boys of his age. Ever so many had tried to get hold of the trick; but Sam did it so quickly that they never could see how it was done. As soon as Sam saw Johnny he challenged him to play. At first Johnny objected by saying he must go to Sunday-school. Sam told him it was not near time yet; and then Johnny reflected that, if no one was yet around, it would not be at all strange if he should get hold of that trick of shooting a marble with such accuracy; and he would be sure to stop in time to be on hand at his class. A ring was soon formed, and the boys were deeply absorbed in the game. Did it ever occur to you, my friend, that you are sure to have bad luck when you consent to do any thing on Sunday that you know is not just right? This time was no exception to the rule. Sam produced his celebrated marble, and popped the one out of the center the very first shot. But that precious, valuable marble also "popped" into a puddle near by, for it had been raining the night before. Sam at once plunged his naked arm down into the puddle just where the marble disappeared, but did not find it. Johnny also very soon began poking around in the mud, notwithstanding his clean spotless cuffs and Sunday clothes. You know about how the average boy would manage. Now, even Sam, bad as he was, it seems, did not for a moment suspect that Johnny, a *Sunday-school* boy, would be so wicked as to *steal* his marble. After Johnny had poked a while he stood up and said:

"I declare, Sam, I can't imagine where that marble could have got to; but I am late for Sunday-school already, and I really can not stop another minute. You will be pretty sure to find it if you keep on hunting."

After Johnny had got a little way off he slipped the precious marble into his pocket and hurried off to Sunday-school. We will not follow him any further just now; but I presume that every child who reads GLEANINGS (and I have been told several times that there are quite a few who do) knows as well as every older person about how Johnny felt as he took his place in the class.

The above little story was repeated in my hearing by the teacher of our juvenile department, after she had returned from attendance at the Ohio State Sunday-school Association. Perhaps I have not told it just as she did. She made an object-lesson of it by having some thin glass tumblers, numbered from 1 to 10. She told the children that those tumblers were to represent the ten commandments. Then she asked them how many of the commandments Johnny had broken that beautiful Sunday morning after the summer shower, while he was on the way to Sunday-school, all fixed up nice and clean. Those beautiful clean cuffs and nice starched clothes with which his mother fixed him up were soiled, and their beauty was more or less marred by the muddy water. But, oh dear me! how much worse was the state of poor Johnny's *heart!* That bright clear conscience which he had as he started out in the morning—oh what a wreck and ruin! He might have said, when he first got up that morning, like David, "Oh how I love thy law!" Poor Sam! with all his wicked ways, dirty clothing, and bad talk—poor Sam, whom we left poking away in the muddy water—why, Sam was a *prince* beside poor wicked sinful Johnny.

The speaker asked how many of the commandments Johnny had broken that morning. Several hands went up. Then she asked some one to mention one particular command, and to repeat the commandment. Then she broke one of the little tumblers with a hammer, as a sample of the way Johnny had broken God's holy law. Almost everybody was startled. And then another commandment was repeated which Johnny had broken, and crash went the hammer again into the glass that represented that command. To get right down to the real truth, he came pretty near breaking every one of God's commands when he got started, by being so careful not to let his mother see him slip the marbles into his pocket. When he yielded to Sam's invitation to play marbles on Sunday he forgot about the command, "Remember the sabbath day to keep it holy." When his fingers touched that precious marble in the mud he broke the one that says, "Thou shalt not covet." When he said it was time for him to go to Sunday-school he broke the one about bearing false witness; and when he started off with the marble in his pocket, he had deliberately smashed in pieces and trampled under foot the one which says, "Thou shalt not steal." Why! if Johnny had been a little older I am not sure but he *might* have broken every command of the *ten* before the sun went down that night, had he kept on in the way he started

So far this is just a child's story. But, dear friends, we are all children of a little larger growth. Grown-up men in business circles get into just such scrapes, and they sometimes yield to Satan's suggestions just as poor Johnny did. The good clothes, the bringing-up, and the fact that they go to church, and are sometimes on the way to church, does not save them. Truly the tempter is constantly going about seeking whom he may devour.

It was David who gave voice to the beautiful words of our text—"Oh how I love thy law!" and he spoke truly. In another verse he says, "I hate and abhor lying; but thy law do I love." David was such a godly man—he lived such a good and pure life, as a rule, that he was at one time called a man after God's own heart; but even David himself was in danger. Perhaps the very fact that he had got into a way of thinking that so good a man as he was could not well commit sin, or at least such terrible sins, was one reason why he at one time in his life made that terrible fall. Through his early years he endured persecution, such as perhaps no other man had experienced. He

held on to God's strong arm through it all. He was not only brave and courageous, but he was bright and hopeful. He enriched the world with his beautiful precepts, and the way in which he repeated God's precious promises. The Bible tells us that, if we are not weary in well doing, and faint not, we shall finally reap the reward of our faithfulness. David passed through all his trials, and it seems as if God had decided finally to reward him. He could bear adversity, he could bear persecution, he could bear to be driven from home and friends; and he had such magnanimity of heart that he would not strike back even when the enemy that was trying to take his life was so fully in his power. He endured adversity; but when great *prosperity* came it was too much for him. He was the king; and finally not only all men but all *women* bowed before him. He was wise, smart, and bright—probably good-looking, especially when arrayed in his royal apparel. Perhaps flattery made him vain and selfish. He commenced something, doubtless, as Johnny did. He began to do things because he was *king* that he might not have thought of doing otherwise. Then he began to covet something that belonged to his neighbor. It was not marbles nor houses and lands, nor fine dwellings. Why! he might have robbed his neighbor of *millions* of money or property, and it would have been trifling. What he *did* covet was his neighbor's *wife*, notwithstanding he had at the same time more *wives* than any man ought to have, even if he *was* king. This neighbor was a faithful soldier in David's army. He was absent from his home and fireside at this very time, because he was *loyal* to the king. Could a king stoop to any thing so wicked? May be the *woman* was partly to blame. We do not know. Perhaps she forgot her loyal, faithful, honest, and devoted husband who was doing his duty like a man and like a soldier. Trouble came, as trouble always comes when we make the prince of darkness our partner. Even the king himself was in a corner. Something must be done. He called Uriah home; but Uriah, in his simple honesty and independence, refused to be a tool, even for the king. We do not know whether he suspected guilt or not. He would not go home while the king's army was all out in the field. David then plied him with presents, and even made him drunk; but the poor honest soldier was loyal and true to his country and his king, even when more or less *intoxicated*.

David was fast getting on from bad to worse. We do not know what counsel this wicked woman gave him. Perhaps I should not have said "wicked," after all, for it is a pretty serious matter for even a woman to refuse to do the bidding of a king, or it was in those days. David called in his commander-in-chief, Joab, and unblushingly let Joab into enough of his guilty secret to tell him what he wanted. Joab was a fierce warrior—a man accustomed, doubtless, to committing terrible crimes when the king commanded. The letter containing the directions to have Uriah pushed forward into danger, where he was sure to be killed, was carried to the wicked Joab by no other than the honest, upright, and manly Uriah himself. One almost begins to think, when reading it, that *Uriah* should have been king, or at least commander-in-chief, and that *David* should have been the private soldier, where he would have been under strict regulations, so that he could not harm others. Of course, Uriah was killed right speedily; and after a brief ceremonial mourning Bath-sheba became David's favorite wife.

Unbelievers have spoken of David's cruelty to his enemies. They tell us that, after he had taken them captive, and when they were defenseless, he tortured them with saws, and harrowed them with iron tools, and even made them pass through fire. But we should remember this was while David was carrying about with him that terribly guilty conscience. When you see a man—especially a man in authority—who is surly, harsh, and who does not hesitate to let everybody know, right and left, that he is unhappy, and unhappy from morning till night, is it not a pretty sure sign that *that* man is carrying a guilty conscience? Such men are cruel to women and children; they are heartless and brutal to the dumb beasts. It is the guilty conscience that does this. David was no exception. He was a terrible man, probably, until Nathan, by God's command, went and told him that little story about the one ewe lamb. This lamb belonged to a poor man. It was a pet in the family. It was the only one they had. They regarded it as almost one of the children. A rich neighbor lived near him who had great flocks of sheep, and every thing else in proportion. A distinguished guest came to see him; but instead of taking from his own flocks he went and killed this one ewe lamb belonging to his poor neighbor, and had it dressed for the feast. When Nathan told David the story, David was surly and harsh still. The idea that anybody should do such a thing aroused the king's anger. He declared that the rich man should pay fourfold, and then finished up by saying that the rich man should be *put to death*. Such a guilty, selfish, unscrupulous man is not fit to live, even if he *is* rich. And now the grand character of Nathan the prophet shines out. He extends his finger and says, with terrible emphasis, "Thou art the man. Thus saith the Lord God of Israel, I anointed thee king over Israel, and delivered thee out of the hand of Saul; . . . wherefore hast thou despised the commandment of the Lord, to do evil in his sight? Thou hast killed Uriah the Hittite with the sword, and hast taken his wife to be thy wife, and hast slain him with the sword of the children of Ammon." Poor David! God's just retribution had come at last. Had David been like some of the old heathen kings the old prophet would have been put to death at once for *daring* to rebuke the monarch. David had been bad—*terribly* bad; but he was *not* a lost man, after all. God's grace had not entirely departed from him. David bowed his head, and confessed that the Lord's judgment was just and right. But the retribution followed. Away down through the ages the consequences of this sin and folly came cropping out. Murder and bloodshed, crime after crime, followed in quick succession. Absalom, his own child, drove him from his home and throne in order that he might be king instead of his father

In reading this sad bit of history one wonders if it were really possible that David uttered the words of our text. What inconsistency for a man who had committed such an act as that to say, "Oh how I love thy law!" The Bible teaches, however, that the grace of God can change a man's heart; and God has promised to forgive our iniquities so that they may be as if the charge against us were blotted out. Unbelief and skepticism reject this; but what a hopeless world this would be if there were no such thing as real *penitence* and a new heart!*

Again, it has been urged that God seemed to indorse this wickedness by making Solomon, the fruit of this unholy union, such a great and

* If any one has any doubt in regard to David's penitence being sound and genuine, let him read the wonderful words expressing his sorrow and grief over his sin, in the 51st and 32d Psalms.

wise man. Not so. God has promised to bring good out of evil; and where a soul truly *repents*, God does finally bring good from that which was started as evil. David's first transgression was in breaking the command, "Thou shalt not covet;" and if the commandments had been written after David's time, I should have thought the clause, "Thou shalt not covet thy neighbor's wife," possibly came in because of David's transgression. The command against adultery was broken very speedily; then the one against stealing, and the one in regard to bearing false witness; next, *murder;* and then the poor guilty wretch was ready, it would seem, to trample almost the whole decalog under foot; but God's faithful prophet stood by and fearlessly charged David with the sin.

Dear friend, God's faithful servants are near you at this moment—nearer than you think. Are you ready to bow your head in acknowledgment of the sin when the needed rebuke comes at the hand of a courageous and faithful friend? May God help you to repent as David did!

In my hands is a little book entitled "Handbook of the League of American Wheelmen, Ohio Division." It is sent free to every member of the L. A. W., which means League of American Wheelmen. Now, the book has a little map of the whole State of Ohio, and then on each page is a map of each county, purporting to give every traveled road in said county, and telling the wheelman which roads he had better take to reach a certain point, warning him which roads to avoid on account of hills, sand, or mud in muddy weather. This book is compiled from contributions of wheelmen in the separate counties, and it has been a source of much pleasure and profit to me to study our State of Ohio while I study the pages of the book. Some of the wheelmen, where they happen to have a natural love for scenery, have given important objects of interest in their separate counties. For instance, Mr. H. R. Boving, of Lancaster, Fairfield Co., tells us of some wonderful pieces of Nature's work in his county. I reached Lancaster, as I have told you, about 4 o'clock in the afternoon (see page 612 last issue). I made inquiries of people on the train, and found that Mount Pleasant was just in the edge of the city; in fact, it almost reaches over a part of the fairground. As soon as I stepped from the train I mounted my wheel and made for this rocky structure. It is a mass of rocks 250 feet high at the highest point; and on the side toward the fairground, and, in fact, almost all around it, the walls are nearly perpendicular, sometimes overreaching. The top is covered with grass and trees, and in the cavities of the rock, on its summit, one can almost always find rain water enough to get a refreshing drink, even if it is not always cool. There are wild flowers, grass, trees, mosses, and laurels, in great profusion. When I was a boy in my teens I got hold of a book of Indian romance. It was entitled, I believe, "The Forest Rose." The hero of the tale was Lewis Wetzel, and his wonderful deeds of daring took place on this great bluff. I have not learned how much of the story is fact and how much is fancy; but there was doubtless some fact about it, and it made me enjoy all the more my visit to Mount Pleasant. If any of our readers can get hold of the book, "Forest Rose," so as to mail it to me, I will gladly pay them for their trouble. As it is more than forty years since I saw it, it may be out of print. I learned, also, from my handbook, about "Riven Rock," within four or five miles of the city. The book simply says, "A large hill full of fissures, from fifty to one hundred feet deep, wide enough for a single-file procession." The only chance I had for the visit, on account of the many committee meetings of the Anti-saloon League, was between adjournment at noon and the opening of the afternoon session, which began at 2:30. Counting out 20 minutes for dinner I had a little over two hours to explore Riven Rock, and go and return. The latter was quickly done, for there are beautiful macadamized graveled or limestone roads in all the principal directions out of the city.

As my time was so limited I made some inquiries to be sure I was right. Two or three people said it was from four to six miles; another one said nine miles; and after I had got about 2 miles in the right direction, a blacksmith declared most positively that it was *14 miles*. I went a little further and consulted a woman, and she told me there was no such rock or mountain in that neighborhood; but she finally informed me, however, that there was something over beyond the State Farm—in other words, the Ohio Industrial School for boys. I longed to visit that school, but lack of time forbade. A little further on I met a man in the road, who straightened me out. He said there were two wonderful rocky hills. One of them is four miles from Lancaster, and the other seventeen. The blacksmith had started me on the wrong road. It was one of the hottest days of the present summer, and I just made the summit of one of the tallest hills in Fairfield Co. Lost again. There was no help for it; I had started out to visit Riven Rock, and to Riven Rock I was *going*. I went down the hill like the wind, struck the graveled pike once more where the blacksmith started me wrong, and went up hill and down (like the wind again) until I was sure I ought to be near Riven Rock. A boy said it was just ahead of me, on the right-hand side. He had been there "many a time." Half a mile further, some men working on a bridge told me I had come past the place to turn off; that I would have to go back half a mile, and go through a gate where it read "No trespass."

Now, I do not like to do such things; but I concluded to "trespass" notwithstanding, and pay damages if I got arrested. After many turnings over the hard road I was at the foot of Riven Rock. The man on whose land I was "trespassing" was so much taken up with my 19 pound Remington wheel that he easily forgave my breaking the rules. I was in so much of a hurry, however, I asked him to take my wheel in charge while I ascended the path he pointed out up the wonderful mountain. There was such a growth of trees, shrubbery, and vines, one could not see any thing except the brush and trees. Toward the summit of the hill it seemed to be all rock, and said rock was shattered by some mighty convulsion so there were fissures in every direction. It reminded me of Mammoth Cave, only there was a thin streak of daylight over most of the pathways. I plunged in, thinking, I should have time for only a brief survey. Many feet had made quite a smooth pathway, except where leaves and brush had dropped down from above. Pretty soon it occurred to me that I was losing the points of the compass by so many windings and turnings; but I thought I would push through

to the opposite side of the mountain; but there were so many openings to the right and left, and the pathways were so crooked, I soon realized that I could not tell any thing about which way I was going. I reached the outside, but nothing met my view but vines, trees, and bushes. Had I not been in such a hurry, I would have stopped to admire the rhododendrons that grow here in great profusion in their native soil. Friend Boving told me that, during the season of bloom, their beauty is beyond conjecture. I went back into the rocky fastness, and thought I would try to come out where I went in; but there was not a familiar pathway to be found. I came out at different points, but each one looked just like the other. After going out and in through the mountain until I was pretty well tired out, I finally decided I would push my way through the tangled vegetation at a venture. I listened for some sounds of life or human activity in the valley below, but not a sound.

After getting scratched, and covered with burrs, I finally struck a wagon-track at the base of the hill. Then I sat down and tried to figure out whether I had better go to the right or to the left. The sun was so nearly straight overhead that it did not tell any thing at all. I finally turned to the left, and traveled about a quarter of a mile. Then I discovered a house off a little piece from the road. A woman there told me I was going the wrong way. I sampled their beautiful plums that were just getting ripe, then took a drink of water from the old oaken bucket, with its squeaking windlass; went a quarter of a mile further, and met a man. I told him I wanted to get back to Lancaster as soon as possible, and informed him where I had left my wheel.

"Why, stranger, if you have got a good 'wheel' it is not any trick at all. We have a boy in these parts who has ridden down to Lancaster in fifteen minutes."

"You don't mean he went over roads like this one before us, so as to get to Lancaster in fifteen minutes?"

He declared he did; but I mentally decided that either the wheels or the boys or both were of a different kind from what they have in other parts.

In a little more time I was on familiar ground, and the first glimpse I had of my wheel was seeing a lank, barefooted boy standing before it and looking at every part with wonderful earnestness. It was just as I surmised—that boy was the one who rode to the city in fifteen minutes. He finally added, however:

"Oh! it was fifteen minutes *after* I got out of the lane on to the *graveled* pike; and the lane was nearly a mile long around in among the hills, and pretty hard traveling even on foot." And then I noticed something I had not seen at first. Right across the lane from where I set my wheel up, was a home-made bicycle. It was mostly of wood. The front wheel was taken from a corn-sheller, and the cogs were left on, so wherever the boy rode, the cog-wheel left its print in the dirt. My barefooted friend explained, however, that he did not make four miles in fifteen minutes on *that* wheel. He said his younger brother rode that, and made it go very well, especially where it was a little down hill. I too, when I got out on to the graveled pike, made Lancaster in a very short time; and I reached the speakers' stand on the campmeeting grounds just as one of the "big guns" was getting in his heaviest oratory.

Now, if you ever get near Fairfield Co., do not fail to take a view of these wonderful freaks of nature. It is worth going fifty or one hundred miles to see either of them, especially to one who loves to study nature's freaks as I do.

NEW POTATOES.

The first to get so ripe that the vines were dry, were New Queens; and our first digging gave us 108 bushels from a quarter of an acre. The yield would have been still larger, but a part of the ground was so low that the potatoes were drowned out, and rotted. The next that seemed to be ready to dig was about a quarter of an acre of White Bliss Triumph; but these were really earlier than the Queen, because they were planted later. Another thing, the Queen was from large potatoes planted whole, putting at least ten bushels of potatoes on the quarter-acre, while the White Bliss were planted with potatoes cut to one eye. The cutting was done at Goldsboro, N. C., and shipped to us after being cut. The way it came about, we ordered an additional barrel after their potatoes were all cut ready for planting. Not to disappoint us they sent them along ready to drop. My experience has been that this is not the best way. But these came up promptly, and gave us almost a perfect stand. They did not cover the ground as thoroughly as where we planted whole potatoes, but they made a very nice show in a very short time. Now, the yield of these was almost equal to the New Queen. It was certainly over 100 bushels from a quarter of an acre, and the potatoes were almost all great big whoppers. This is something rather unusual, at least with us, for extra early potatoes. Some of them were almost too large for a nice cooking potato. The quality is very fair. I do not know that the White Bliss is any better yielder than the Red Bliss (the potato quoted in the market as the "Triumph;)" but both of them are certainly very valuable potatoes. First, they are about as early as any thing in the world. I do not know of an earlier potato. Notwithstanding this, they are splendid yielders. Third, they are of good shape, good size, and, last of all, they are very good in quality. From my present standpoint I pronounce the Bliss Triumph to be the best early potato in the world. The *Rural New-Yorker* reports Salser's Earliest as the earliest potato in a trial of 58 varieties; and the experiment station pronounces Salzer's Earliest the same as the Bliss Triumph, if I remember correctly. The White Bliss is an improvement in being white. A white potato always receives the preference, other things being equal.

How about the Thoroughbred? Well, none of them are quite ripe at present, Aug. 19. With us it seems to be a later potato than the New Queen or Triumph; but the vines are pretty nearly dead now, and we shall have a report from them soon. By the way, all the potatoes on our plantation, except our old favorite the Craig, look yellow, dead, and dying since our recent rains. The Craigs are just as they have been the two years before this—bright, green, and thrifty, when every thing else is dark and wilting. Not only are the Craigs free from blight, but neither bugs nor recent dry weather seems to have much if any effect on them. Bugs are certainly not as bad on the Triumph or White Bliss as on the Thoroughbred and most others. Manum's Enor-

mous is going to make a tremendous yield, I can see by the way it is heaving up the ground; but the vines are more or less affected by the dry weather we are having now after the tremendous rains that settled our clay ground down so hard and solid. You may remember I used a barrel of sulphur to counteract the scab, and the scab is a little the worst where the sulphur was used—at least, it looks so at present. We need not reason from this that the sulphur made the scab worse; but the piece of ground where the sulphur is put on was probably more liable to produce scab.

OUR POTATO-DIGGER.

Our potatoes have all been dug thus far with a cheap digger—one costing us about $10.00—a sort of shovel-plow with prongs sticking out behind. With this we can dig potatoes almost as fast as Terry can with his expensive digger, except—— "Except" means that it does not get *all* of the potatoes on top of the ground. If potatoes are worth only 25 cts. a bushel, it does not matter so much if you do not get them all; and if you are going to fix the ground for some other crop after the potatoes are off, it does not matter so much; only every time you work the ground, a boy must go over with a basket and pick up the potatoes that get thrown up to the surface. With a yield of 400 bushels to the acre, perhaps from ten to twenty bushels would be left; and the only way you could get these would be by working the ground over and over, and having a boy spend his time in following the tools, and picking the potatoes up. The main crop can be dug and put into the cellar for four or five cents per bushel; but it may cost you ten or fifteen cents a bushel to get the last fifteen or twenty. I should really like one of the diggers that elevate the potatoes, sift out the dirt, and leave them spread out on top of the ground; but will it pay to buy such a machine where one raises, say, eight or ten acres of potatoes a year? If he gets 400 bushels per acre, right straight through, it might pay, *especially* if he could get forty or fifty cents a bushel for his product. But a ten-dollar digger does pretty good service, after all, especially where you can get good boys for five or six cents an hour.

Burpee's Extra Early and Six Weeks did tolerably; but neither of them is as early, as productive, nor of as good quality as the White Bliss.

PICKING UP POTATOES.

We have perhaps half a dozen boys and men, more or less, to pick up potatoes. Now, there is a great difference in people. All pickers will leave some potatoes on the ground, or partly under the ground. I frequently go after them to see how well they get hold of every one that is at all visible. Some very good men at other kinds of work will pass by a good many potatoes. If they are partly covered with earth, or behind a lump of dirt, they may not see them at all. Naturally, small boys are most likely to skip, saying they did not see them. But this is not always true. When we were digging the White Bliss they were so valuable that I went over the ground after the pickers, to see how many they missed. The ground was lumpy after the heavy packing rains I have spoken of, and a good many times the only glimpse one might get of a nice large potato would be between the lumps of dirt. Now, I can see a potato, or I can guess where one will be found under the dirt, for it amounts to pretty nearly the latter, better than any one of my helpers. Perhaps it is because I am intensely interested, and that I feel as happy with a nice potato as I would in catching a big fish. Another thing, I have had years of drill in this very thing. Most of my bee-keeping friends have learned how to find a queen among thousands of moving bees. Well, this same drill has taught me to see potatoes when you might say they were practically out of sight. And it is not only potatoes but it is a thousand other things that I see around among the work when nobody else sees it. Almost every morning there is a tool of some kind missing. If I am not around, much time will be spent in looking for it. When I remind the boys where they had it, they have forgotten all about it. As I go over the ground, my eye takes in tools that are left where last used, and crops that are ready to gather, and all sorts of things that need doing. Well, that is right and proper. If the boss of the ranch does not keep his eye on things of that sort, he is not fit to be boss. And this thing makes a man valuable and high-priced. There are men who notice every thing, and who remember every thing, and who think to remind the employer of things that need attention; of tools that ought to be repaired; of crops that are suffering for a little care; and where we find a man who is keen and sharp, and on the alert in this way, and is constantly saving steps and waste and loss because of his intense *interest* in what is going on, he is the man who gets big pay, and very soon is promoted to the position of foreman. Now, so simple a matter as picking up potatoes takes a man's measure, or *money value*, in the way I have been speaking of. My friend, can you pick up the potatoes after they are thrown out by a machine, so that I can not find any nice fine large ones if I follow after you?

PICKING NICE APPLES IN YOUR OWN DOOR-YARD.

Do you know what it is to have an apple-tree of your own, and watch the apples day by day from the time they emerge from the blossom until they are great luscious beauties? Have you seen the beautiful colors of Nature's pencillings as they come forth under the influence of the autumn sun to tell of the luscious ripeness that comes with maturity? Then have you enjoyed handling the great fair fruit day by day until it has approached just the right stage of mellowness? If not, then you have missed one of the rare joys of having a home of your *own*. Our apple-trees have all been sprayed four times this season, and we have the finest and most beautiful fruit it was ever my fortune to find anywhere. First we were delighted with the tree of Early Harvest I have told you about. Now we have Maiden's Blush and Queen Ann, and our Gravenstines and fall pippins are just beginning to ripen. All these are close by the door, so it is an easy matter to watch every stage of Nature's work. By the way, when at our experiment station Prof. Green asked me to notice the smooth clean trunks and limbs of the apple-trees through the orchard where they had been sprayed regularly year after year. "Now," said he, "just look at the trunks and limbs in this one row right down through the orchard where there has been no spraying done at all." I did not know before that spraying affected the trunk and limbs, and, in fact, the whole tree as well as the fruit, for that particular season.

MONEY LOST IN THE MAILS—WHO SHALL STAND IT?

Although stamps and even bills, when inclosed in a letter, usually reach their destination, especially here in the North, there are, notwithstanding, every little while, cases of

loss. This occurs oftener where letters come from quite a distance; and past experience seems to indicate that there are certain localities in the South where it seems unsafe to send money without registering or some other means of making it safe. We, like other business houses, protest in our circulars against sending money in that way; but many people will continue to do it. When a loss comes up, the question is, "Who shall stand it?" Where the money sent was for something needed badly, we have been in the habit, for years past, of sending the goods right along, asking the sender to bear part of the loss. With few exceptions they are willing to do this; but once in a while we have a customer who, after he gets the goods, absolutely refuses to do any thing. Below is a letter received last April:

I sent you an order on the 13th day of March, 1896, for which I enclosed $1.80, for three Clark's cold-blast-smokers, and have not heard from them yet. Please send me, whether you sent me the smokers or not; or have you received the money?

Hoping to hear from you at once I am yours truly, X. Y. Z.

—— Ga., April 3.

P. S.—Send goods to ——, Ga. (by mail).

After we had ascertained that no such letter had ever reached us, we wrote our friend, expressing our regret; but we told him also, as the want of the goods might be more than the worth of them, we had concluded to send them right along, proposing to divide the loss, as we often do. Since then we have written him perhaps half a dozen times, telling him we could ill afford to furnish him the goods he wanted, without getting even *one copper* in return. As he has the goods in his possession, however, he seems to think he is all right, and replies each time something after the fashion of the letter given below:

Dear Sir:—Your statement on my account is just received and contents carefully noted. I have paid said account in full. If you charge more for your goods yet, I don't understand how you can claim any more from me. X. Y. Z.

P. S.—I sent you just what you say I owe you. I hope this will be satisfactory to you. There is no doubt about your getting said money.

——, Ga. June 8. X. Y. Z.

Please notice how provokingly he writes—"No doubt about your getting said money."

There is another feature about this matter: The want of a smoker to handle bees may be much greater than the real worth of it—that is, there are times when the bee-keeper could afford to pay the price of a smoker rather than be without it a single day. Under such circumstances, when we forward one without receiving the money we may do a customer a real kindness. Now, we are always glad to do this; and, as I have said before, in a great majority of instances we find our friends ready to share the loss with us. The conduct and behavior, however, of just one man like X. Y. Z. is so discouraging that we may have to give up the plan entirely. Should one man, by his stubbornness and unwillingness to share a part of the losses be permitted to stand in the way of the general good?

Health Notes.

THE RALSTON HEALTH CLUB.

Friend Root:—Read the inclosed clipping (from *Butler's Electricity*), headed "Ralston Health Club," and learn how to live 200 years. It beats meat and hot water "all holler." R. TOUCHTON.

Santa Paula, Cal., March 7.

The newspaper clipping inclosed with the above letter is from an old and valued friend in California, and it gives quite fully the experience of a lady who invested. She pronounces the club a big money-making scheme, and says that, when you get right down to it, the wonderful secret that costs so much to get hold of is nothing more nor less than Dr. Hall's internal hot-water cure. Within the past two or three years I have received letters from a good many persons, urging me to join the Ralston Health Club. I feel sure these friends are honest and sincere; but after sending $1.00 for one of their books, and trying to read it understandingly, it had the opposite effect upon myself. While there is a good deal of sense and sound advice, which seems to be mostly copied from good authorities, there is also to *me* a good deal that is *any thing* but true science. The newspaper clipping that I refer to says: "Although $35,000,000 has been paid to its officers, no accounting has ever been given to the members of the manner in which the money was expended."

It seems to be a sort of secret society; and the book I purchased had the word "Private" printed at the top of every page. I say *had;* for, after I had had it about six months, I sat down determined to find out the real scientific value of the thing if I could. This was because so many good friends so earnestly urged me to look into it. My researches ended in pitching it into the waste-basket.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

THE YOUNG MARKET-GARDENER, OR THE BEGINNER'S GUIDE.

The above is the title of a paper-covered book of 120 pages, by our old friend T. Greiner; and, judging from a brief review, I think it is one of his happiest efforts. Every page of it seems bright with important instruction, and the cheerful vivacity and intense enthusiasm of the writer make it more interesting to one who loves to grow stuff either under glass or out in the open air, than any fiction. The instructions are so very plain that the average boy or girl would know just how to go to work. The price of the book is 50 cts. by mail, postpaid. No doubt the book is worth 50 cts.; but when garden and farm produce is bringing so little, I did hope that friend Greiner and his publishers would have been able to make it a little cheaper, especially in paper covers.

NOVELTIES FOR 1896.

First we have Mills' Earliest in the World tomato. During the past season we have planted nearly all of the popular candidates for an early tomato. Mills' Earliest gave us the first, and they are certainly as nice and smooth as any tomato in the world. They are not as large as the Fordhook, but they are at least one week earlier. This fact alone gives them a place. It strikes me they would be a valuable tomato to grow under glass. We have carefully saved all the fruit, and have seed of our own growing that we offer for sale in 5-cent packages, or 10 cts. for ⅛ ounce; ¼ ounce, 15 cts.; ounce, 50 cts.

For a large-sized tomato, a little later than the above, we place the Fordhook at the top of the list. It is handsome, and of good size, early, and of good quality. Price of seed of our own raising, from selected fruit, ounce, 35 cts.

Cole's American coffee-berry is a success for coffee, and also a valuable variety of the soja beans. If I were going to use coffee at all, I should prefer this to the real coffee—principally, perhaps, because I think it more healthful. Just now, however, pure hot water is the most delicious beverage for *me*, to be found in the whole wide world, both at and between meals. I have often said, and say now, may the Lord be praised that he has given me a liking

for pure water, beyond any thing else, as a beverage. We can send you a few seeds of the coffee-berry for 5 cts., if you want them.

MILLS' BANNER BEAN.

This is another thing that we got from Mills, that we think worthy of adoption. It is a plain white bean, looking very much like the York State marrow; but it has given us the biggest yield, I think, I ever saw with any of the bean family. At present we can offer seed of our own raising, only in 5-cent packages.

THE NEW UPLAND RICE.

While in Florida I fell in love with rice for a forage-plant and as feed for stock, as well as a cereal for table use. Well, when somebody advertised a kind of rice that would grow in the North, and on upland, I felt glad. Some of it is now maturing seed in our garden across the way; and, so far as I can see, it seems to be a success. If you want to try it we can furnish seed in 5-cent packages.

RURAL NEW-YORKER WINTER OATS.

When the *Rural New-Yorker* announced that they had a kind of oats that would stand the York State winter without injury, I procured enough to sow an acre. I have told you how it wintered. We have several bushels of seed of our own raising, very nice and heavy. If you want to make a trial we will mail it in 5 cent packages, or we will send a quart for 10 cts. If wanted by mail, add 10 cts. more for postage. Sow it about the time of sowing wheat.

SEED AND ONION-SETS TO BE PLANTED IN SEPTEMBER.

If you are going to winter cabbage-plants over in cold-frames, you had better sow a few seeds, say every week during the month. As much will depend upon the weather, some of your sowings will probably hit it. Start lettuce, to be moved into the greenhouse later, if you have not done it already.

All kinds of radishes may be put out now. The Chinese Rose Winter seems to be best.

Now is just the time to sow spinach, to be wintered outdoors. Bloomsdale Extra Curled we consider the best. Price 18 cts. per lb.; 5 lbs. for 75 cts.

ONION-SETS TO BE PLANTED IN SEPTEMBER.

In our locality we succeed more or less with almost any kind of sets; but the Extra Early American Pearl stands at the head of the list, both in hardiness and in quality. Price, per quart, 20 cts.; peck, $1.25; bushel, $4.00. This year we can furnish the White Prizetaker at the same price as the American Pearl. This White Prizetaker was introduced by Johnson & Stokes. It is certainly a very handsome onion—better in shape, with fewer thick necks than the old Prizetaker. Perhaps the latter is owing to the fact that seed is now scarce and very high-priced. We have such a large quantity of sets, however,* that we can furnish them at prices as above. Large size, suitable for pickling-onions, half the above prices. The White Multiplier and the Whittaker onion winter with us perfectly winter after winter, as I have told you. Price of these, 10 cts. a quart; 70 cts. a peck; $2.50 a bushel. Winter, or Egyptian, onion-sets, 5 cts. a quart; 35 cts. a peck; $1.00 a bushel. These would winter and grow all right, without doubt, away up in Alaska; at least, I have never heard of their being killed out by the winter anywhere. *If onion-sets are ordered by mail, be sure to add 10 cts. per quart for postage.*

STRAWBERRY-PLANTS.

If you have tried putting out strawberry-plants in September, and have made a success of it, all right. Go ahead and plant them out by the thousands if you choose; but if you are new in the business, and have not tried fall planting, perhaps you had better commence with a dozen, or, say, 25, and "learn the trade." We shall put them out all through this month, and we shall make them *live;* but we are going to do it with the transplanting-tools, as I have explained.

* In regard to raising Prizetaker onions from sets, I clip the following from a recent number of the Practical Farmer:

I experimented with Prizetaker sets this season, and my success was complete. I set two rows in my garden early in April. The ground occupied was, all together, 144 feet. I raised two bushels and a half. Some of the onions weighed one pound and three ounces. I think the entire lot would average one-half pound apiece. Did not use any kind of fertilizer.

Mahoning Co., O. D. E. BINGHAM.

SECOND-CROP SEED POTATOES.

I do not know how many of the friends have tried planting potatoes in July or August, that were grown the same year; but I do know of one person who made a blunder by deciding that his potatoes were never going to come up, and planting some thing else. After the "something else" came u the potatoes did too, and now their great strong thrifty vines are growing nicely—that is, the few that were not spoiled by our blunder. The exceedingly hot weather about the time they should have been planted, has been, I judge, rather unfavorable. But quite a few, however, who bought the Thoroughbreds along in July say they are now coming up nicely. I am now sorry I did not plant out a couple of acres instead of a few rows. I think I am "learning the trade," and will know better how to do it next time. By the way, it is wonderfully refreshing to me to see the bright green foliage and rank growth just at a time when potatoes are ordinarily wilting and blighting and drying up. My Freemans, that were planted about the middle of July, are now a "thing of beauty;" and if not a "joy for ever," they make my heart rejoice two or three times every day when I take a look at them.

SEED POTATOES FOR 1897.

At present writing, Aug. 27, of course no one can tell exactly what the supply and demand will be, and where prices will stand; but I have ventured to make the following low prices to those who will send in their orders now and have their potatoes shipped now or some time later as they may choose. We put the price so low we think many of the desirable late varieties will be sold out. We are rather hoping that prices will advance; but we are prepared to furnish every thing mentioned, at the prices given, for *immediate* orders. Where orders come for the late varieties that are not dug we will ship them as soon as dug, or later, as you may desire. Figures are for selected potatoes. Seconds, where we have them, will be just half the above prices. This applies to every thing except to potatoes sent by mail; for few would be likely to be willing to pay 8 cts. per lb. postage on any thing but the best. Our Freemans and a large part of our Thoroughbreds were raised by T. B. Terry. I have just looked over his fields and sampled his potatoes; and some way or other it seems as if potatoes of his raising are a little nicer than any others I have ever seen anywhere, unless it is those grown by Wilbur Fenn, Tallmadge, O. Terry grows only early potatoes, and Fenn grows only late ones—that is, they are planted late, and will not be dug, probably, until some time in October. Our Sir Williams and Monroe Seedlings are all grown by Wilbur Fenn. At present writing he has the handsomest 18-acre potato-field of rank green thrifty potato-vines that I ever saw in any month or anywhere—not a bug, not a bit of blight; no scab, no perforated leaves.

NAME.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph ...*	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's*	50	75	35	1 50	2 75	5 00	12 50
Burpee's Extra Early....	15	35		35	40	75	2 00
Freeman	15	35		35	40	75	2 00
New Queen†				20	30	50	1 25
Monroe Seedling.....	12			20	30	50	1 25
Sir William	15	35		25	40	75	2 00
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	35	60	1 00	2 50
Manum's Enormous.....	15	35	20	35	60	1 00	2 50
New Craig.....	15	35	20	35	60	1 00	2 50

* The above prices of Early Thoroughbred are for selected tubers, mostly from the crop grown by T. B. Terry. For seconds, half above prices. Very small Thoroughbreds, say about the size of marbles, will be sold at one-fourth prices in the table while they last. This will give every one a chance to supply himself with seed at a very moderate price so long as the small sizes and seconds last.

We have several bushels of Thoroughbreds raised in North Carolina, sent us to plant for the second crop, that were not planted, because we did not have room. These potatoes have commenced to sprout, or, rather, show signs of sprouting. Now, if any of the friends north or south have arrangements so they can plant them at once we will furnish them at half price given in table. As they are already started they can be easily cut to one eye, and will grow at once. We have planted quite a lot of them in our plant-beds; and by covering them with glass or cloth frames, when early frost comes we expect to get seed from them for planting next year.

† A piece of almost two acres of New Queen has just been dug, and the yield is 375 BUSHELS PER ACRE. I measured the ground myself, and counted the boxes of potatoes.

SWEET CLOVER—DECLINE IN PRICE.

Until further orders we will supply good fresh sweet-clover seed at the following prices: 1 lb. by mail, postpaid, 18 cts.: 10 lbs. or more, by express or freight with other goods, 6 cts. per lb.; 100 lbs., 5 cts. per lb. Sweet clover with the hulls taken off, 5 cts. per lb. additional. Of course, there are a good many more seeds in a pound when the hulls are removed; but many who sow the seed prefer to sow it with the hulls on. Where it is ordered by mail we usually send the hulled, because it does not pay, as a rule, to pay postage on useless hulls.

CRIMSON CLOVER.

Our crimson clover that was sown Aug. 15, where we dug our New Craig potatoes, is now, Aug. 28, up with two second leaves, and the roots are down in the ground at least four inches. We have kept sowing crimson clover, a strip every day, as fast as the potatoes were taken out of the ground, from that day until now. We shall not risk any, sown after September 1; but with the abundant rains and beautiful condition of the soil, we have faith that, with an ordinary winter, we shall be able to get a good stand in the spring. Our Thoroughbreds that were planted where our heaviest growth of crimson clover was turned under, now promises to make the greatest yield I have ever seen with potatoes. T. B. Terry's Thoroughbreds are all dead, and the vines dried up; the same with our first planting; but the piece where the crimson clover was turned under has the vines still green and growing. Now, this would seem as if it were a late potato; but there were very nice potatoes in this same patch, and fit for eating, more than a month ago. The abundant rains, with the heavy growth of clover underneath the potatoes, has evidently given them a new start. The way they are heaving the ground up at the present time, Manum will have to do a big thing with his Enormous if he eclipses them. The potatoes will likely be some prongy, under the circumstances. They are not as handsome in shape as the Freeman—that is, on *our* soil; but those grown by T. B. Terry, on his nice loamy soil, with the preparation and care he gives them, are of very nice shape, with very few prongy ones, judging from the few hills we dug as a test.

One more thing about crimson clover: Some of our ground had a very heavy application of old well-rotted stable manure last fall; and potatoes grown in this ground have made a tremendous yield, as I have told you; but where we turned under the heavy growth of crimson clover we are evidently going to get better results than even with that heaviest and most *expensive manuring*. I confess I could hardly believe such results from the crimson clover alone had I not seen it with my own eyes. I tell you, friends, it is going to be worth our while to make a tremendous effort toward success in this matter of getting a catch of crimson clover in the fall so it will stand our winters.

ONE LOVEL DIAMOND BICYCLE CHEAP.

We have one second-hand Lovell Diamond in first-class running order, convertible, for lady or gent, Morgan & Wright tires, which we offer for $25.00. We will take honey or wax in trade. Send us sample of your honey, and we will quote you the price we will pay—the same to apply on the purchase of the bicycle.

KIND WORDS FROM OUR CUSTOMERS.

THE BEE-KEEPERS' ARMENIAN FUND.

Contributions up to date are as follows:

Amount previously acknowledged	$102 57
C. A. Hatch, Phoenix, Arizona	5 00
	107 57

A MOST PRECIOUS TESTIMONY, AND GRAND MORAL IN CLOSING.

My experience with bees, their habits, and intelligence, has removed every doubt as to the existence of the all-wise and overruling creator, God. I have been a professor of religion for many years, but, like others, have had my periods of doubt and fear; but these are all dispelled, and I feel myself nearer my heavenly Father than ever before; hence I understand your devotion. B. F. ONDERDONK.

Mountain View, N. J.

Dear Brother and Friend:—Bee-keepers as a rule are mostly of a moral character; second, they pay their honest debts, which is an act all should do. I believe that GLEANINGS should be in every family, because it has no trashy stories which pollute the minds of the young. When we read GLEANINGS it is full of useful work, and leads the mind to work; and as we read on till we reach the last few pages, then our minds are led to a better work—that is, the few words which tell us our duty to God, which is the bread of life. There is no good in those novels; but the mind is trained to evil deeds and a lower life which ends in sorrow and woe.

Palmyra, Mo., Aug. 10. WILLIAM COX.

CONVENTION NOTICES.

The annual meeting of the Southern Minnesota Bee-keepers' Association will be held at Winona on the 24th and 25th of September next, at 9 o'clock A. M. All who feel in any way interested in bees or honey are very cordially invited to attend.

Winona, Minn., July 27. E. C. CORNWELL, Sec.

The Southwestern Texas Bee-keepers' Association will hold its third annual meeting at The Jennie Atchley Co.'s Live Oak Apiary, 3½ miles north of Beeville. Board and lodging free to those from a distance. The reception committee will meet all trains. Please notify the secretary if it is your intention to attend. Date, Sept. 16, 17. J. O. GRIMSLEY, Sec.

Beeville, Tex.

The annual meeting of the Southwestern Wisconsin Bee-keepers' Association will be held at Wauzeka, Oct. 7 and 8, 1896. All interested in apiculture are invited to attend, especially those who want a foul-brood law to protect their bees from the dreaded disease. Our committee is working hard to get every bee-keeper interested, and we should all feel it is for our own interest to help get a State law to protect our bees. Many prominent bee-keepers of the State have promised to be at our meeting, and no one can afford to miss it.

Boscobel, Wis., Aug. 11. M. M. RICE, Sec'y.

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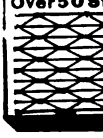
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THE A. I. ROOT CO., Medina, O.

WANTED.—To exchange or sell a twenty-inch pony planer.
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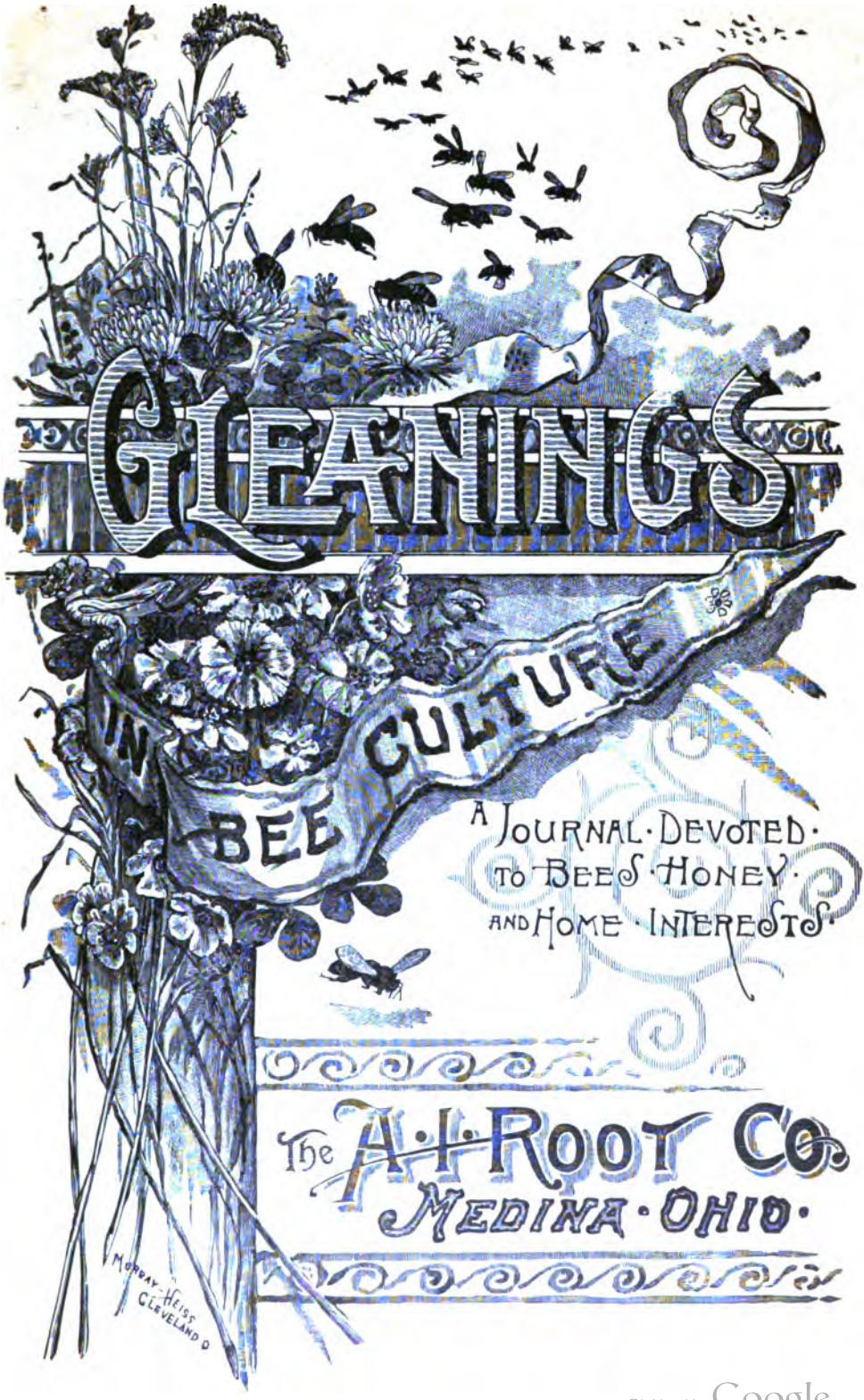

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

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E. R. ROOT, Editor of the Apicultural Departments.
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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Vol. XXIV. SEPT. 15, 1896. No. 18.

STRAY STRAWS FROM DR. C. C. MILLER.

ARE YOU GOING to Lincoln, Oct. 7? [Yes, A. I. R. and your humble servant are planning to go.—ED.]

SOME NEW FACES will be at Lincoln that I'm anxious to see, and some old friends that I'm anxious to greet.

THE PAN OF SALT hasn't sweetened the cistern very much, but I think it has a little. I don't see any objection to carbonate of soda except the expense.

IF ALL THE CAKE and all the cooked sweets were utterly banished from the table, and Nature's own sweet, honey, substituted therefor, I believe it would add greatly to the health, happiness, and longevity of the nation.

SENSIBLE is Doolittle, p. 643, in thinking good performance the thing to watch in selecting stock to breed from, and I believe every bee-keeper can do something toward improvement in that line. I know one who might do more of it than he does.

OUT OF ALL THE AGITATION that's taking place, I hope we may yet see an organization of bee-keepers strong in numbers and influence, and it matters little whether it's made out of old or new cloth. [Yes, indeed. See another column.—ED.]

THE ONLY REASON I desire the peculiar head on the spacing-nail is simply so it shall easily go just the right depth in driving. I've tried the common wire nail, and, aside from the difficulty of driving, I like it not only a "little bit" but very much. Theoretical objections that I had against it have disappeared in actual practice.

A. I. ROOT, you're altogether too modest. If I were president of the convention to meet at Lincoln, I'd blow about what a big time we were going to have, to try to get everybody to go. For the first time, all outside the one State are to be boarded and bedded free, and travel is less price than usual. [You wait, doctor, till we get a little nearer the time of the convention. We do not want to waste all our powder at the start.—ED.]

LIKE G. C. GREINER, I never before had so much trouble with swarms in August—more than in June, virgin queens coming out with laying queens in some cases. Here's a case he didn't have: A large swarm at an out-apiary had hung two days on a tree. I cut off the limb and carefully placed the swarm at the entrance of a hive. Swarm gently arose, and sailed and sailed away east, leaving two bee-keepers standing with mouths wide open.

THE MUCH-LAUDED and much-condemned Punics or Tunisians have proved themelves—at least the half-breeds—to be excellent gatherers—hardy, cross, and the champion gluers of the world. No good for comb honey—make watery combs; but for extracted honey they may be a good thing. [Your experience seems to tally very well with the bees we have had of this race; but on account of their being champion gluers, and so very cross, we were very glad to get rid of them.—ED.]

I SEND HEREWITH, attached to the manuscript of this Straw, the best frame-spacer I have ever tried. Do you think I could get it patented? [The frame-spacer that Dr. Miller sends is nothing more nor less than a stout wire nail 1¼ inches long, and a scant $\frac{1}{10}$ inch in diameter. I have no doubt it would make a very good spacer. But a nail-head is objectionable on account of its liability to catch in the wire cloth of the extractor. I have never tried extracting from such frames, but others have, and they say they do not like them.—ED.]

I'D REALLY LIKE to know whether I'm mistaken as to the general use of the word "section" for the honey that's contained in a section box. You use it that way yourself, Mr. Editor, on p. 632, in the next sentence but one after saying you never use it so. "We ate half a section of honey" would pass for good English generally, I supposed. What would you

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consider better English? [Yes, doctor, I think you are mistaken as to the general use of "section" for honey, especially when you speak about cutting the "section out of the wood." You say I use it that way on page 632. I have read that page over twice, but I can not find where I used it so.—ED.]

C. H. CLAYTON may be away off as to the price of drawn combs, but he's level as to the dealer's profit on honey. Why should he have twice as much for handling honey as molasses with only half the trouble? Out of joint somehow. [Commission men say that comb honey, at least, is much meaner to handle than syrups. There is the breaking down, the leakage, and the tendency of the combs to deteriorate in appearance in time. As to extracted honey, it candies, while syrups do not; but taking every thing into consideration, there is too great a difference.—ED.]

I DON'T WONDER you didn't like the spacers you mention on page 632, Mr. Editor, if you used only 100 for 12 eight-frame hives. I use 384, four to each frame. But I suspect there's some mistake in your wording. Less than four spacing-nails to a frame could only result in failure. [Yes, indeed, there *was* a mistake, and there is no use in trying to "explain" how it happened. What I should have said was that 100 would be enough for six hives, leaving two spacers to a frame. I couldn't get along with four, "nohow." I have tried them that way; and the chief objection to them is their catching when putting in and removing from the brood-nest. Two are bad enough.—ED.]

"THE GRANDEUR of the Flowery Kingdom is made more wonderful to the imagination of man by the busy bee, who makes the wild rose bow with beauty as it yields up its sweetness to the ever vigilant master who refuses to be comforted until all its commercial worth has duly and deftly been extracted by the untiring genius of this marvelous insect." Thus opens up a honey-dealer's advertisement. Eloquent, isn't it? [The firm who puts out this flowery circular is C. R. Horrie & Co., of Chicago, to whom we referred in our last issue editorially as the commission house concerning whom numerous complaints had come in from bee-keepers last season. But the wise bee-keeper will not be misled by such a mess of schoolboy oratory as is found in the introduction to that circular.—ED.]

A WRITER in *British B. J.* says care should be taken to have excluder zinc right side up; that, by rubbing your hand over it, you'll find one side smooth and the other rough, and that the bees should be allowed to go up through the smooth side. But I can't find any great difference in the two sides. How is it, Mr. Editor? [If the zinc is punched poorly, so that there is left a burr edge on one side, it may be an advantage to put the smooth side down; because, according to the Englishman's theory, the bees are supposed to go up through the zinc fat (full of honey) and come back lean (without any). It makes very little difference, however, with most of the perforated zinc on the market in this country. We aim to keep the dies and punches of our machine sharp enough so that there will be practically no burr edge on any of our zinc.—ED.]

I WISH YOU HADN'T said, p. 648, "As to prices on comb honey, 12 cts. seems to be about a fair average," for I'm sure you didn't mean to bear the market. The average of all the prices given, p. 648, is 13.3; and that includes prices, not only of those reporting, but of some of the little producers who take just what they can get. The average for fancy white, p. 629, is just about 13. But what's the good of striking an average, any way? Who's to be guided by it? Certainly not those who can get 20, and hardly those who can get only 10. [I gladly accept your correction as to the average of comb honey. When I made the answer I was hurrying to take the train, and did not stop to figure it out. The price is low enough without giving the impression that it should be lower than it really is, and I apologize to all bee-keepers who have secured a little honey this year.—ED.]

"LARGE CROP all over excepting California," says one commission firm, p. 635. That story seems to have got under headway, and I don't believe it's true. Reports on p. 648 certainly don't warrant it; and, taking California into account, I have some doubt whether the season has been better than 1895. The season has been phenomenally early, and receipts of commission men should on that account far surpass last year with the same crop; yet of the 12 who give any comparison, p. 634, only 6 say receipts have been greater, and 4 say lighter. [The statistical reports as published in our last issue did not give an entirely correct view of the honey season. When I said this season was better than last I based my estimate on the larger number of orders received, and especially on the greater demand for honey-labels. Last year we received very few orders for labels. This year there has been a larger demand for them than for several seasons past.—ED.]

IF ANY ONE KNOWS any good reason why end-bars and bottom-bars should not be the same widths as top-bars, will he please rise and give it? [The only reason that I can assign why the bottom-bars are usually narrower than the top-bars is because, the smaller that bottom-bar is, the more likely the bees are to build the comb down to it. If I am correct, doctor, you once advocated bars ⅝ square, and I know I did. Well, the bees built their comb down to these bars all well enough; but the trouble was, when there was a good honey-flow they extended them clear past the bars; and for that reason our supply establishment decided on a com-

promise—¾ inch wide. We have a good many combs built down to bars of this width; and in no case that I remember have the bees built past them. If the bars were $1\frac{1}{32}$ or $1\frac{1}{16}$ wide they would be almost sure to leave a bee-space between the comb and the bottom-bar. This would be a waste of valuable space, besides being a good place for the queen to hide.—ED.]

THE NEW BEE-KEEPERS' SOCIETY.

SHALL IT BE NATIONAL OR INTERNATIONAL?

By Dr. A. B. Mason.

Every little while I see statements in the different bee-journals that "kinder rile" me; and if I could have the writers close by me when I first read their statements I'd make them believe that they had l—ll—lie—misrepresented something.

On page 609 of GLEANINGS for Aug. 15 I find this statement. In speaking of amalgamation, the editor says: "Well, then I would make it national; and I am inclined to think that the society whose operations are confined to one country would be more easily managed, and could do more good, than one that tries to cover one or more countries and makes a poor fizzle of it after all." I never was an editor, so I don't know how they do their thinking; but an ordinary mortal wouldn't have to think at all to know "that the society whose operations are confined to one country . . could do more good than one that tries to cover one or more countries and makes a poor fizzle of it," unless "the society whose operations are confined to one country" should also make "a poor fizzle of it."

The editor's statement seems to imply that a society that tries to cover more than one country would prove a failure and make "a poor fizzle;" but so far as the N. A. B. K. A. and the N. A. B. K. Union are concerned it is not true. Until 1893 the Bee-keepers' Union was known as the N. A. B. K. U., and included in its territory "all of the United States and Canada." That year the constitution was changed to the "National Bee-keepers' Union," and Canada was left out; but Article 5 of the constitution provides that "any person may become a member," etc., and in his report for 1894 the General Manager says, "The National Bee-keepers' Union knows no dividing lines of States, Provinces, or Territories. . . The Union defends its members . . no matter where they happen to reside." So the Union covers more than one country; and if it is a "fizzle" it is a pretty healthy one; and if it continues to "fizzle" in the future as in the past it will be a long time before there will be any "flies on it."

Again, the editor says, "But as some of our friends have objected strenuously to amalgamation, it has seemed to me that it would be better to drop that scheme and make the Union such an organization as the great mass of us desire." Now, for one I'm not in favor of dropping the amalgamation scheme because some are opposed to it. Ever since amalgamation was first proposed I have been opposed to it unless it could be accomplished without in any way interfering with the usefulness of the Union; and in all I have seen in the bee-journals, and in private correspondence, I have not seen a good reason given for not carrying out the scheme. For the past four months I have been corresponding with all the bee-keepers, from the Atlantic to the Pacific, and in Canada, who have said any thing about amalgamation or organizing a new society, that I have seen in the bee-journals, trying to get them to put their ideas in the shape of a constitution, and have succeeded in getting but three—one each from California, Illinois, and New York, and all of them are for a new representative organization. I have studied over the matter a good deal and have come to the conclusion that I am in favor of amalgamation, and believe that it can be accomplished, and in such a way as not in the least to interfere with the usefulness of the Union, but rather be a benefit to it, and also be a benefit to more bee-keepers than are now in touch with it, and at the same time be a benefit to the annual meeting, that can be held the same as is now done by the N. A. B. K. A.

It is usually much easier to say what ought to be done than to tell how to do it; but some of the most active in our fraternity, besides members of the amalgamation committee, have been comparing notes in the matter, and others will contribute their quota toward evolving a scheme by which amalgamation, if possible, may be accomplished, and the result will probably be a report at the Lincoln meeting, from the amalgamation committee, that will be acceptable to both the National Bee-keepers' Union and the N. A. B. K. A.

"Again, some object to having the new organization international," says the editor. Well, what if they do? Some people "object" to almost any thing, without giving a good reason for so doing. We've had a man in our U. S. Congress who was, and is still, known as the "great objector;" but I don't believe he's a bee-keeper. I can't see any real objection to having the new organization international. Canadians have been members of both organizations, or of the Union, from their first organization, and they have behaved pretty well. To be sure, they "brag and bluster" sometimes, but "we uns" have got used to that, and don't mind it. They are big-hearted; and if they are a little egotistical, like their neighbors, they mean all right.

To be sure, they "are away ahead of us in having a flourishing society," and well they

might be; but they can't beat the Union. Just let Uncle Sam give us from five hundred to eight hundred dollars a year,* as the Dominion does the Canadian bee-keepers' organization, so that we could pay bee-keepers to join our society and work for it, and our Canadian friends would be just nowhere compared with us. I see no more harm in taking their money for a membership-fee, in the future, than in the past. If a Canadian pays his membership-fee into an international treasury, it entitles him to be protected in his rights in the way and to the extent that the constitution provides for, and our money helps to do it, and his money helps to protect our bee-keepers, and I don't see how any "disagreeable complications" could arise.

Quoting again from the editorial it says, "Having two, as we now do, is expensive and unnecessary, while it is perfectly evident that one could do the work of the two. . . I say, away with amalgamation, and let the Union set about to reorganize itself as soon as it can." Well, well! did you ever? It is possible that "one could do the work of two;" but if annual or any other general meetings are to be held, how is the expense to be done away with? Perhaps some State will, each year, go Nebraska "one better," and foot all the bills, transportation included.

I don't see any object in the Union reorganizing itself. It seems to have had faithful and efficient officers from the start, and to have done its work efficiently. I don't see how it could have done better.

Some may say, "Well, you have taken a good deal of space, and have given nothing definite as to what kind of an organization you think would be best." Yes, I know I haven't; but I know the amalgamation committee and some others are trying to formulate something that will be generally acceptable, and will report to the meeting of the N. A. at Lincoln.

Some are in favor of a representative organization; but this country of ours is too large for such an organization. The business necessary to be done to protect the bee-keeper's interest can be done as it is now by the Union, and the social part of the organization will have to be enjoyed by such only as can spare the time and money to attend such gatherings.

I see by GLEANINGS for Sept. 1st, which has just come to hand, that the wonderful "Skylark" has "put his foot in it" as usual. In speaking of the coming meeting of the North American at Lincoln, he says, "This is just the chance you want to form and organize a new union and honey exchange—national in every respect. There will be present a large number of bee-keepers—men of national reputation, almost equal to myself, and you will not get such a body together soon again." And then he goes on to tell what ought to be done, and advises that the North American with its present membership, be turned into a new "Union and Honey Exchange," and in three months there will be 1000 names on its rolls, etc.

Well, well! Skylark is great on advice; but I wonder why such a great and wise man as he is doesn't go ahead without so much talk, and tell *how to do it*. I guess I know the reason. Wise people are usually modest, and his modesty—not wisdom—keeps his from showing his ig—ign—igno—ignoran—no, not just that, but keeps him from telling how to do it. But I'm in the same fix he is. I never before realized how much alike Skylark and myself are; only he is so much the greater man that I fear he would hardly like to associate with me; but the very next chance he gets he'll strike at me, and then hide behind a *nom de plume*.

It can not be expected that an organization can be perfected at once; but "there seems to be a feeling in the air" that measures should be taken at Lincoln to begin the work of perfecting an organization that shall not only protect its members in the enjoyment of their rights, and prosecute adulterators, but also aid the members and others in disposing of the products of the apiary to the best advantage.

I have studied the By-laws of the California Bee-keepers' Exchange with a great deal of interest, and can see no reason why the Exchange should not be a success; and it is possible that something in this line may yet be organized to represent a larger territory, or even the whole United States.

But something more is required of a national organization than to act as a medium of exchange. Adulteration must be looked after; and, if I mistake not, the present National Bee-keepers' Union stands ready to do this whenever requested to do so; but before beginning operations they must have positive proof, such as will stand the test in the courts. I am glad indeed that it "appears" to Skylark, when looking through his "little microscope," that the little—but mighty—Union is watching that $700 that is laid away for future use. That is just what that $700 is for—future use; and it should not lie around loose, especially when any one may be skylarking around.

Toledo, O., Sept. 2.

[Now, look here, doctor. It "kind o' riles" me to have you pitch into me as the chief offender, more especially as you try to make me imply what I did not mean or say. I did not say that the Bee-keepers' Union or the North American was a poor fizzle because either might be international. The National Bee-keepers' Union (more national than any thing else) is not a fizzle by any means, and never was; but the North American—I will say it now—tried to be international, and made a fizzle of it; and finally at Keokuk it was voted to make it simply an organization that would

* Since the above was written I have come across the statement that, in 1895, the Ontario B. K. A. received for membership $175; from affiliation, $65; government grant, $650; total, $890.—A. B. M.

take in the United States and Canada. Understand that I do not say that, while it was international in name, the *society* was a fizzle, but that the *trying* to be international was a fizzle. As North American it did well considering its limited functions, if I may use that term, and our great geographical distances. If it had been distinctly national I am rather of the opinion that it would have done better still, because our geographical distances are too great even then. Now, what riles me is that you place "trying to cover one or more countries" and a "poor fizzle" together, when you know I meant one was the natural sequence of the other.

As I said in that same editorial to which you refer on page 609, I am not now, nor was I then, particular whether the new organization should be national or international, or whether it should be a combination of the two societies, or a product of one; namely, the Bee-keepers' Union. The most I cared about, and do care now, is *something* that will be accepted by the majority. If that majority desires the amalgamation of the two into one society that shall be international, then I am with it heart and soul; but I shall *feel* just the same that the chances of success will be better to have it distinctly national. Why, we have not now, and never have had, a national bee-keepers' association in my recollection. The Ontario bee-keepers have a society that is practically national; at least, it does not step out of the border lines of its own country. The British Bee-keepers' Association is another sample. Both of these national societies are a success in every sense of the word. Are we so small in numbers that we must needs go to other countries for support? You will remember that, three or four years ago, the bee-keepers of the United States wanted to have the North American incorporated, and some of the leaders in Canada opposed it so bitterly that those of us who desired peace advocated dropping incorporation. The new Bee-keepers' Union must necessarily be incorporated, for how can it sue or be sued, and how can it prosecute honey adulterators unless incorporated? What is to prevent the Canadians from objecting on the same grounds as before? I am well aware that not all of them did so object. I cite this only to show that there would be local differences, and that it might be easier to have one distinctly national organization. If the Canadians desire to have a protective society, they could very easily, by a slight modification in their constitution, hitch to their present organization a protective union—one that would do the work that the Bee-keepers' Union of this country has done and can do in the future.

Now, having had "my say" in favor of a national organization, I am willing to drop the idea entirely, and take in Canada, if it seems more feasible and practicable to the majority of bee-keepers. As to amalgamation, I do not care much either way whether our new society is made out of two or one organization. Personally I was in favor of amalgamation at the very start, and am yet.—ED.]

THE UNION AND REORGANIZATION.

TRIENNIAL MEETINGS; TWO CLASSES OF MEMBERS.

By Geo. W. Brodbeck.

Mr. Editor:—I notice that Dr. Miller, in one of his Straws, Aug. 15, propounds the following question: "And do I understand you to say, Bro. B., that you now want to kill the Union and get up something else? If so, just tell us what it is, and if you've got something better I am with you."

The question on amalgamation is now of not much interest; so, concerning this, a reply is not necessary, for the whole voices itself in the self-evident fact that we all now favor a distinctive national organization that will represent the interests of the bee-keepers of the whole United States; so my reply is in reference to the Union.

In my article in GLEANINGS and in the *American Bee Journal*, which appeared some time ago, proposing a national association, I at that time favored a separate and distinct organization from our present Union; but where you, Mr. Editor, with the indorsement of Mr. York and others, favored the reorganization of the Union, I too began to realize the advisability of utilizing by enlargement the tried and tested foundation of the Union in the establishment of just such an organization as we are in need of. So you see, doctor, my object is not "to kill," but to build up; and while some of us may differ in regard to minor details I believe in the main we can agree, and I for one am disposed to give due credit to all who have been interested in this subject and in their attempts to solve the problem of the general good of the bee-keeping fraternity of the United States; and I trust that the presentation of the following propositions of how best to attain this object will not be considered presumptuous, but as coming from one who is aiming to add his mite toward its accomplishment; and by the careful sifting of all the sands presented we may glean sufficient gold with which to build.

The one great obstacle to contend with in the endeavor to secure State, Territorial, or sectional representation to a bee-keepers' congress is the expense and loss of time to those who would be forced to travel a long distance; and unless we can devise ways and means to defray and distribute this expense, all of our efforts to secure a representative assembly will result in failure.

The defensive feature of the Union is another, for some favor it and some do not. There are some others; but as I desire to be brief I will present my suggestions for overcoming these; for by the accomplishment of this we no doubt can remove others.

To satisfy and induce a like interest in a national association I would divide the membership into two classes:

1. The protective class.
2. The non-protective class.

The first class would be those whom the association would defend in their legal rights, the same as the Union does at present; and the second class would be those who would share all other benefits except the above. The mem-

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bership-fee in the first being one dollar, and in the second class 50 cents; that 25 cents from each entrance-fee and from each annual payment be reserved and deposited as a reserve fund for the express purpose of the payment of mileage of properly certified delegates to and from the meeting of the association.

Now, to secure a fund sufficient to meet the expense of such representatives it may be necessary for us at first to decide on triennial sessions, and to limit representation to one for every fifty and over, and two for every one hundred and over, the membership of each State or Territory making its own selection of delegates. The membership in each State is to select one of its members as a director, said director to supervise and attend to the interests of its members subject to the General Manager; also an executive board composed of the officers of the association, who are empowered to act for the organization in all matters pertaining to the interests of its members or the association proper.

I might give you many more; but as I consider these the essential features in the construction of a national organization I trust they will suffice.

There have been many good suggestions presented toward the establishment of a national association by many of our most prominent writers; but I do not remember of a single one mapping out a practical solution of this problem. In a letter received from one of our most prominent bee-keepers a short time since, he states, "It is quite easy to say a thing can and ought to be done, but it is quite another thing to tell how to do it;" and then in addition I desire to say that it is so easy to criticise, and too often it ends in putting obstructions in the path of those who are endeavoring to advance the cause of the whole; and unless something better can be suggested, our criticism, as a rule, results in no good. As regards the propositions presented in this article, I am perfectly willing to submit them for criticism to Dr. Miller or any one else; but in doing so, please remember that the writer is not infallible; and if you can aid by suggesting additional or better propositions, remember you are doing it for the good of the many.

Los Angeles, Cal.

[While I am in sympathy with some plan of representation, similar to what you propose, it seems to me it would entail too great an expense, and in time render the association bankrupt. You yourself see that it would take liberally of the funds, and suggest only triennial meetings. With gatherings so far apart, I am rather of the opinion that we should lose interest in and perhaps forget about the association. The annual meetings of the North American were the very life of it. Enthusiasm, the motor force of many of our organizations, would be kept up by annual meetings, but not by triennial gatherings. One of the main reasons for reorganizing the Union was that it might have annual meetings; and your plan, it appears to me, would make this impossible, at least for the present.

I doubt the wisdom of having two classes of members. If any of them need protection, they *all* want it. Why not one class, and every member eligible to *all* the privileges of the association?—ED.]

PRICES ON HONEY.

A GOOD ANSWER TO THE QUESTION WHY IT IS LOWER NOW THAN IN THE '70'S.

By Adrian Getaz.

"Friend Getaz explains, p. 563, that the price of honey is governed by the price of the corresponding quality of corn syrup. But how about comb honey? Does glucose control the price of that?" So writes Dr. Miller, p. 595.

Certainly, dear doctor; but as the *quality* of comb honey is superior to that of extracted honey, the price of comb honey is higher in proportion. In fact, when I wrote the above I had both in mind, comb honey as well as extracted.

It is entirely unnecessary to bring politics into the question of honey prices. We did get a much higher price for honey in the '70's than we do now; but why? In the '70's there were no substitutes to compete. All the sweets we had were sugars, mostly dark (but little white sugar was used, as it was retailed, at least here, at about 20 cts. a pound or more); some New Orleans molasses and sorghum molasses, made in ordinary iron kettles, both pretty nearly as black as tar, and a limited quantity of home-made apple-butter and also some good but high-priced New Orleans molasses. Now all this is changed. White sugar is sold at 5 cts. per lb. instead of 20 or more. With the invention of the evaporator, quite an amount of fairly good sorghum molasses is turned out every year. With the falling price of sugars has also fallen the price of the New Orleans molasses; and, above all, corn or glucose syrups are sold in enormous quantities, under all sorts of fancy names, such as "Pure Golden Drops," "Golden New Orleans syrup," "Pure California orange honey," etc. Add to this an immense quantity of candies, jellies, more or less artificial, and other confectioneries made possible by the cheapness of sugars and glucose, and then you needn't look for any thing else than the competition on the markets of the above substitutes. We are "confronted by a condition and not by a theory," and we can not change the situation.

But, on the other hand, we need not be afraid of lower prices, even if the production of honey were considerably increased; for these substitutes are sold now at the lowest possible margins, and an increase of honey production would simply displace them in part, as, at equal or somewhat higher prices (especially in the

case of comb honey), the consumer will take the honey in preference.

DEAD BROOD.

While I have "the pen in hand" I should like to know if, in the apiaries of those reporting some peculiar cases of dead brood, the symptoms of bee-paralysis have been observed (page 610, Aug. 15th issue). Those who read the *American Bee Journal* know that the disease exists in East Tennessee, at least in this part of it, and that I have had and am yet having quite an experience with it. I can not say positively whether bee-paralysis will kill any of the brood or not; but I suspect that it does sometimes. I have had many cases of some dead brood carried out I could not account for otherwise; yet, in the absence of a microscopical investigation, I can not say. I don't see why it should not. There is a fundamental difference between foul brood and bee-paralysis—that is, the rapidity of development. In foul brood, the brood attacked is sure to die in a short time, and infect the rest of the hive. I suppose the matured bees attacked will soon leave the hive and die outside. I also suppose that a queen attacked by the disease would die before she could lay many infected eggs, if any at all; hence the reason why queens do not transmit the disease. There is no doubt about the liability of matured bees to contract the disease. Bacilli have been found in their bodies, even in the ovaries of the queen.

But bee-paralysis is a slow-developing disease. In most cases bees already showing symptoms in the fall will survive through the winter, and even give the colony a start in the spring. It is likely that many of these sick bees had contracted the malady while in the larval stage or got it from the queen through her eggs. It is also likely that some of the brood may die of the disease. A microscopical investigation of the dead and living brood would settle the question.

By the way, a full investigation and scientifically conducted experiments on bee-paralysis would be a splendid subject for some of our experiment stations, much more useful than hair-splitting experiments on the thickness of foundation.

Some may doubt the possibility of transmission of disease by the queen's eggs. But those acquainted with the silkworm know that the worms attacked by a bacillus almost identical with those producing foul brood and bee-paralysis will not always die in the larval state, but go through their regular transformations, and lay eggs containing spores of the disease. These spores develop themselves into bacilli as the worm emerges and grows. In fact, the transmission of the disease through the eggs is, in the silkworm disease, the principal one.

Knoxville, Tenn.

[While it is possible that causes that have favored lower prices on general commodities have had something to do with the lower prices on honey, it is probably true that the lower prices on other sweets besides honey have had more to do with it. We must not forget, also, that there is a larger number of bee-keepers, and consequently a larger amount of honey produced, as compared with the '70's. The more producers, the more there are who are willing to put their honey on the market at *competitive* prices; but it does seem as if the great reduction in prices on sweets other than honey, and the greater *variety* of them has done more than all the other causes combined to reduce the price on our product.

Regarding bee-paralysis and its relation to dead brood, I have never noticed in any cases in our own yard that there was dead brood along with the paralytic bees; but the next case we see of it we shall watch very carefully. I should like to hear from all those who have had this disease, whether they have noticed along with dead brood paralytic bees. It is possible that one microbe is the cause of both; namely, dead brood and what we now call bee-paralysis.—ED.]

TO FIND THE COLONY THAT CAST THE SWARM.

By G. C. Greiner.

At this writing bees are nicely at work again on buckwheat. Although the flow does not seem to be as profuse as it is some years, it promises to yield at least a fair crop. As this is the last source from which we can expect any surplus honey for this season, to make the best of it all forces must be kept at work in supers; and swarming is, therefore, not desirable. But what are we going to do? they have been very much inclined that way for the last week or two, from one to three swarms being the average per day. (This is another peculiar feature of this season—now and then a buckwheat swarm is what we expect; but to have so many we have never before experienced.) The only profitable way to deal with these swarms is to hive them back to their mother-colonies, either with their queens, after all queen-cells have been destroyed, or, if there is any reason to suspect superseding, without them.

When prime and second swarming was the order of the day, I have stayed in the apiary without intermission—would not leave at meal time, even, without having a substitute to watch; hiving back, whenever desired, was, therefore, an easy matter. But lately my work has been such that I could not very well remain constantly with the bees, and most of these late swarms have been found swarming or clustered; consequently their places of issue were unknown. To return these swarms to their homes I have practiced dequeening with the very best of success. At first this may seem like a tedious job; but with a little practice any one soon gets to be an expert at this business. Of course, all swarms that are to be treated in this way have to be hived in the hiving-box. If they are small, a close search will generally reveal

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her majesty somewhere in sight, and a quick grab with thumb and forefinger will secure her, even if a dive of an inch or two among the bees is necessary. If the queen is not in sight at first, and does not show herself soon, I take the box on the ground, and, by tipping it from one side to the other, manipulating the bees in such a way that they are scattered thinly all over the inside of the box, sides and bottom; and, nine cases out of ten, the queen will come in sight.

But how can we tell that all the queens are taken from the swarm, after finding one or two? Well, the bees will tell. I hang the box in a

LOOKING FOR THE QUEEN.

convenient place, and wait a few minutes. If they have still another queen with them they will remain quiet, and another search is necessary; but if they are queenless they become uneasy and are soon on their way home.

It is not so easy with large swarms. After they have become quiet in the hiving-box I dump the bulk of them in front of a hive with a set of cleaned extracting-combs. Very frequently the queen is then in sight; but if not, when the bees with their accustomed hum begin to travel toward the hive I set the box with the remaining bees (see illustration), which have also begun the same hum, on the other side of the pile, and soon the bees are drawn in opposite directions, one column traveling toward the hive, the other toward the box. This scatters the swarm over so much territory that matters must be very much against us to miss the queen. But in case she did escape our vigilance she must be either in the hive or in the box; and as soon as the queenless part begins to show this uneasiness, hunting for their queen, I carry the other part with the queen in the near-by bee-cellar. Those left outdoors are thus made queenless, and point out to us the hive from which they issued by their returning thereto *en masse*. We have then the opportunity to destroy the queen-cells of that colony and return the remainder of the swarm from the bee-cellar if we desire. If for any reason we wish to find the queen it can be done much easier, since the swarm has been divided. The set of combs, over which the half-swarm is distributed, can be looked over to better advantage than when twice as many bees are crowded together; or, if the queen had happened to find her way into the hiving-box, the same operation as taking a queen from a small swarm will accomplish the object.

All valuable queens, which I obtain by hiving swarms back without their queen, I keep in nuclei as a reserve in case any are needed; otherwise I build them up as best I can until fall. If by that time they are not strong enough to winter separately, they are united. They occupy a row by themselves, so that two or three can be easily put together.

These nuclei are made from swarms that are not sufficiently strong to work in supers—generally such as have been found queenless in the fore part of summer, and at that time supplied with a queen-cell or perhaps a virgin queen. To form these nuclei I move the swarm that I have selected for this purpose to a new stand; a comb of brood with a caged queen and a couple of empty combs or frames are placed in a contracted hive on the old stand to receive the flying bees. After a day or two, when the queen is released, this makes a strong nucleus and can be built up very fast. The removed colony is by this time destitute of all flying bees, and contracted to its brood-combs. Any time thereafter, every one of these with its adhering bees and a queen can be used to start a nucleus. As they have no flying bees, those taken with each comb will remain wherever placed.

Naples, N. Y., Aug. 15.

A. P., Pa.—Sorghum molasses is not nearly as good for feeding bees as syrup from granulated sugar, especially for winter feeding. However, bees do winter very well on such feed; and as you have the article we would risk it.

C. N. W., N. Y.—Our dovetailed chaff hives are intended to winter out of doors in most localities; but in extremely cold climates, or where there is great exposure, we recommend putting these hives with the bees into the cellar. Then when they are taken out in the spring the double wall protects them much better than a single-walled hive. We think you will find the plan will work very satisfactorily. Your cellar, however, needs to be perfectly dark, and one where the temperature does not vary much above 50 degrees nor below 40. If you put the chaff hives in the cellar, we would advise you to try part of them with just a thin cloth laid on top of the brood-nest — nothing more.

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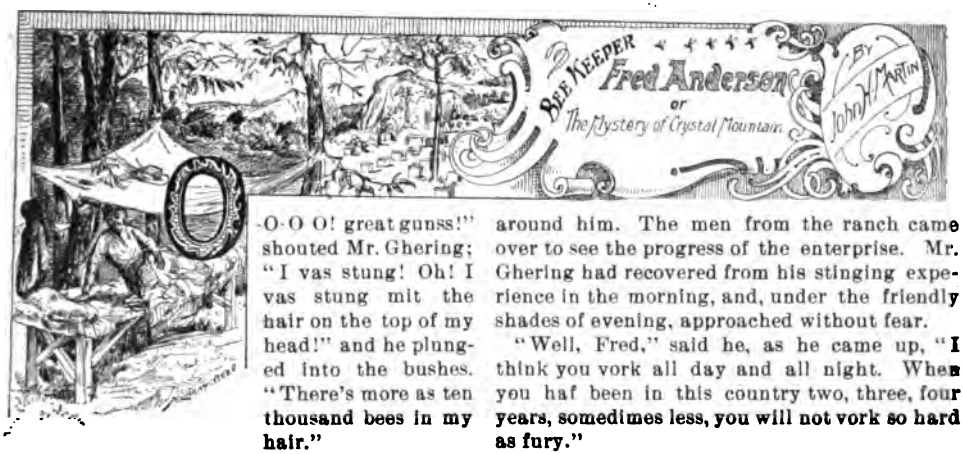

"O-O-O! great gunss!" shouted Mr. Ghering; "I vas stung! Oh! I vas stung mit the hair on the top of my head!" and he plunged into the bushes. "There's more as ten thousand bees in my hair."

"Oh, no!" said Fred, coming to him in the bushes; "there are only two or three—see;" and he picked out the offending bees.

"Vas that so? Anyways, that vas remarkable how those two, three made so much noise, and made my head feel like it vas in one hot ofen."

After Fred had extracted the stings and consoled him, Mr. Ghering found that he was not hurt much after all; and, laughing loudly, said, "Shust think how it vas comical. I vas smiling all ofer my face with an open infitation for them to make a charge; but they all went into the back door of my head, through that von little hole in my hat;" and Mr. Ghering went off scratching his head. His parting words to Fred were to go into some other business, for those bees had all of the anger of McBurger and the devil of Dawson; "but it vas so comical."

Upon being left alone again, Fred cut down the two cottonwood-trees, and, after scoring and hewing them, he had two pieces of timber which faced up eight inches. Halving in several cross-pieces and legs, and covering all with Oregon pine, Fred completed a bench of such generous proportions, and of such a firm nature, that he patted it with his hands admiringly, and, jumping upon it, let out his exuberant spirits by dancing a little jig.

Fred had secured some provisions from down the river, or "grub stake," as the miners say; and for the present, or until he had time to put up his cabin, he proposed to bach it under the friendly cottonwoods. After eating his supper, in the performance of which he used his new work-bench for a table, and still having some minutes of daylight, he selected a number of the rickety hives and proceeded to renail them.

"No spring in that bench," said he, as he nailed up the first hive. "Nothing like having a firm foundation to a fellow's business."

The strokes of Fred's hammer were rapid and lusty, and awoke the echoes in a wide circle around him. The men from the ranch came over to see the progress of the enterprise. Mr. Ghering had recovered from his stinging experience in the morning, and, under the friendly shades of evening, approached without fear.

"Well, Fred," said he, as he came up, "I think you vork all day and all night. When you haf been in this country two, three, four years, somedimes less, you will not vork so hard as fury."

"When I have any thing to do," replied Fred, "I believe in doing it; and especially in this case I can not neglect the work, for, to secure the best results, it must be done right now. In bee-keeping we must have our dish right side up at the proper time, or we lose the harvest."

"I always supposet in the bee-business that the bees do all the vork—shust as they did in my hair this morning—ha, ha! and the bee-owner he do somedings else until he vas hungry for honey; then he shust opens his hife and helps himself. But I haf learned one thing—he must haf no leedle holes in the top of his hat."

"Why, boss," said Matt Hogan, "baa-kaaping is loike fishing—yees must have the bait on the hook, the hook in the wather, and yerself a navigating the pole; it's just aisy whin yees know how."

"Your illustration is very good," said Fred, "but you must be sure of an another important thing—that there are fish in the water."

"That's so," said Matt, scratching his head. "But thin, Misther Fred, who'd be such a murthering fool as to fish in an ould frog-pond where there's no fish?"

"If you aspire to become a bee-keeper, Matt, that is one of the conditions. We get our apicultural hook carefully baited, throw it into the stream, and wait and wait; but no fish rise to the bait. In other words, there's no honey in the flowers, and our labor is in vain."

"Well, thin, I'd move up stream, and try all the coves, or go over to the Feather or the American River. Be gorry, I'd find the fish."

"That's it, Matt; you would be a migratory bee-keeper."

The late evening air now became quite cool, as it always does in this climate, and the men dropped off one by one to the ranch and to their bunks. Fred called Ghering's attention to his work-bench, and expatiated upon its strength and other good points; "and," said he, "I shall use it at present for a work-bench, table, and

bedstead. It is a cosy place for all of these purposes near these trees."

"You vas welcome to the bunk-house or any place at the ranch," said kind Mr. Ghering; "but if you prefer the pench and the trees it vas good to be intependent;" and Mr. Ghering and Matt left Fred to the enjoyment of his new quarters.

The day's busy work had it's wearing effect upon Fred, and he soon rolled himself in his blankets upon his new work-bench. The tired muscles soon relaxed, and he slept soundly until aroused by nature's alarm-clock, the mockingbird.

Whistles, squalls, and melody resounded from an overhanging branch; and though it was in the earliest glow of the morning Fred arose to plan for the labors of the day.

The bees were all quiet, save a prosperous humming in the hives; and Fred, with mattock in hand, strolled out to his path upon the face of the cliff, and made further enlargements where necessary. This done, and breakfast prepared and eaten, the hives were again taken in hand.

"It's meself that's with yees," said Matt Hogan as he suddenly strode out of the little fringe of bushes near the work-bench. "I have half a day off, and will help yees and learn about the bees."

"Well, now, that is fine; but we shall have to learn together, for this cave-bee management is entirely new to me: but when we get them into the hives, perhaps I can then teach you something. Now, Matt, you see these hives and frames—"

"I certainly do see them, Fred, for they're furninst me two eyes."

"Well, you see they are much out of shape. They have the disease known as the weewams, and need doctoring. We want to give them a dose of hammer and nails; and while I do the hammer act, you may tighten up these fine wires in these frames this way—see? and put in new ones from this spool where they are broken or entirely missing."

"That I will, and do it loike a daisy; and sure is it telephone wires for the king-baa they are?" said Matt.

"That's a queer idea, Matt; but, no; those wires are used for supporting foundation comb like this remnant here—see? But I want all of these wires in for transferring purposes, as I will show you soon."

Ten hives were ready for the bees; and, looking at his watch, Fred said it was now half-past eight o'clock, "and we can work with the bees better now than we could at an earlier hour."

Smokers and veils were brought into use. Several journeys were made along the cliff, and all of the proper tools were deposited down near the cave and bees to be operated upon. Finally Fred took the mattock and knocked away the pieces and cut a large opening into

MATT HOGAN AND FRED AT THE CLIFF.

the vicinity of the colony he had uncovered a few days before.

"Now, Matt, you blow smoke in here while I clip away the chalk, and we'll soon have these fellows out."

"Out!" said Matt, vehemently; "be gorry, what does yees call it but out they are now? Wo-o-o! the roar makes me faale quare, and me knaa-caps are all of a rattle."

"Oh! you will get used to that," said Fred, as he cut out a large section of comb containing honey and brood. Brushing the adhering bees in front of the hive, the comb was laid carefully upon a board, and trimmed to fit inside the hive-frame. "Now, here is a trick

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worth knowing," remarked Fred; "those wires in the center of the frame appear to prevent fitting the comb in properly; but by cutting a little crease in the comb quite to the center along each wire, the latter can be imbedded, holding the transferred comb securely, as you see," said Fred as he slipped his honey-knife under the comb and raised it and the frame to an upright position, and placed it in the hive. "Now the bees will have something to cluster upon."

Fred was an expert at transferring, and the combs were rapidly fitted into the frames.

"MATT. CAN WE HANG ON HERE ALL DAY?"

Pieces of comb, several to a frame, were fitted and held by the wires, as well as full ones; and by the time the colony was transferred, Matt's knee-caps had ceased to rattle, and his interest increased. His questions were asked at the top of his voice, for the roaring of the bees was now terrific. Nearly all of the bees that belonged to that individual colony were secured, and the hive was carried up to its place on the bluff. Here a latticework arrangement was placed before the hive, so that the bees would be sure to mark their location; "and, Matt, if you ever wish to move bees a short distance successfully," explained Fred, "shut the bees in the hive in the evening, and keep them shut in until an hour after sunrise; then move to the new location. The excitement inside the hive, and the lattice arrangement in front, lead them to thoroughly mark the location when they do come out."

"Och!" said Matt, with a sigh; "me education about baas has been sadly neglected. Faith, an' it's a great study, aqual to astronomy, geology, raisin' pigs, or any other science. I fear me thick head'll not contain the half yees are a tellin' me."

Again the expert and the novice went down the cliff with a hive for another transfer. Matt had not received a sting, and was getting very free in his movements.

"Knee-pans all right?" asked Fred.

"Not a flicker there this time," replied Matt, looking down his trousers legs. But a few minutes later, while Fred was making an opening toward the next colony, and Matt close behind him, the latter grabbed the leg he had been admiring, and shouted, "Be gorry, Fred, there's a baa a crawling up me leg! Shoo! go back, ye little strake of avil."

"Now, Matt, you just let the bee alone, and stand still. When a bee gets to climbing so, it never goes back."

"And where in the name of sinse will it go to? I am wonthering," shouted Matt.

"Oh! if nothing happens to it upon its perilous journey it will come out with a happy buzz upon your shirt-collar. Where is the bee now, Matt?"

"Ouch! it be a climbing me backbone—wo-o-o!" and Matt trembled as though he had the ague. "Bedad! bad luck to the pizen baste! it's a stinging me!" and Matt was jumping and stamping in good style, to the edification of Fred, who stopped work to laugh heartily. But the next moment the chalky ledge upon which they were standing could endure no more stamping, and suddenly gave way, and they were both plunged into the water, twenty feet below. Such a fall sent them both under the water; but as no further harm came to them from the falling debris they soon came to the surface.

Frantically tearing off their hats and veils, which were now decidedly inconvenient fix-

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tures, both sought some shallow standing-place; but the bottom of the cave was like a well with a deep rounding bottom. The sides were as smooth as water could make them, and, moreover, slippery with slime. The opening, which was three feet wide, twenty feet above, was only six inches for several feet above the water, and of such a nature that but little light entered the well, except from above; and as this portion of the cave was large at the bottom and smaller at the top, our bee-keepers found themselves in a precarious situation. They were both, fortunately, good swimmers; and as soon as Fred had cleared his vocal organs, and had taken in the situation, he exclaimed with deep disgust, "Well, this is a pretty kettle of fish."

"Faith, that's jist me own idaas," said Matt; "an if I'm to name the braad of fish we are, I'm thinking we're floundhers."

"Whatever we are," said Fred, "the prospect is not very transporting." During their conversation they had searched for a standing or holding-on place; but the only support of that nature was at the six-inch crevice, and here they finally anchored close together.

"Well, Matt, the question is, can we hang on here all day? for surely Mr. Gehring or the men will not come out here until evening, and I do not see any way of escape except with their aid."

"It is certainly a sarious question," said Matt; "an it'll be a tiresome job to hould on to these shlippery rocks all day. I wonther, I wonther, shall I ever see my Biddy Malooney again at all, at all."

"Oh! we must not be discouraged," said Fred, cheerfully; "every cloud has its silver lining, and the righteous shall never be forsaken."

"Aye, that's it—righteous!" said Matt; ye know, Fred, yees told me last Sunday that it was an unrighteous act to go fishing on that day, an I went. Me conscience troubles me a bit; an what think yees, Fred, did me unrighteous fishing bring me to this pass?"

"Oh! no, Matt, you are getting superstitious. You know I did not go fishing, and I am in as bad a fix as you."

"That's so, Fred; but all the same, let me get out of this with sinse, an I'll never go fishing again on Sunday, so help me Saint Patherick."

"That's a good resolution, Matt. But what on earth is that I hear?"

"It's a speerit," whispered Matt, superstitiously. Then they both listened breathlessly, and, penetrating through the crevice, came the song:

The night is stormy and dark,
My lover is on the sea;
Let me to the night winds hark,
And hear what they say to me.

PAPER TRAYS FOR HONEY CRATES.

Question.—I have been told that you use something in the bottoms of your honey-cases, when sending section honey to market, to catch the drip or leakage, should there be any during shipping or in handling, so that the honey from the crate above will not daub the top of the crates below, the floor of the car, or store, or any thing else. This leaking of crates is a nuisance that grocers do not like; so if you have any plan to prevent it, won't you tell us about it in your department in GLEANINGS? Tell us all the little kinks about making, using, etc.; for one little item, so explained that any one can appropriate it, is of more value to one who has no experience than half a dozen articles hinting at things of value, but not put in form so they can be of use to the rank and file of bee-keepers.

Answer.—Very well. If the managers of GLEANINGS do not object, I will try to give all the items regarding the paper trays I use in the bottoms of my honey-crates, even if it takes the whole of my alloted space to do this in; for there is little use in writing to help some one else unless it is made plain enough so the reader can appropriate it to himself or herself.

The first thing wanted is the paper. After testing many different kinds I have come to the conclusion that none is equal to that known as "manilla" having more or less of a glossy finish on it, for the purpose we wish it for. This kind of paper will hold honey a year without wetting or soaking through, while much of the common paper from the stores, such as wrapping paper, etc., will soak through in from a few hours to a week. This manilla paper can be had or bought for about 7 cents per pound at the present time; but I used to pay 10. It comes in sheets from 24 by 36 inches, up to 40 by 60, or therabouts. The size I use is 30 by 40, as that cuts to the least waste for my crates.

As to the cutting. You can generally get it cut to the size you wish at the store where you buy it; but as I always wish to use more or less of it for other purposes, I cut it myself. To do this I employ one of two plans; the first of which is to lay the paper flat on my work-bench; and, after having marked the upper sheet into the size I wish, I take a straight-edge, lay it on the paper in the right place, bear on the same to hold it in place, when with a sharp knife it is cut by drawing the knife several times along the straight-edge, each drawing cutting to the depth of from three to five sheets.

The second way, and the one most often used,

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is to proceed as before as to the marking, when I lay a long thin saw on the paper, the back of which is straight, and then tear the paper the same as you would tear it by a ruler, the back of the saw being used in place of the ruler, as it is longer. After a little experience you will be able to tear from six to eight sheets at a time, thus saving time. The paper should be cut 1½ inches larger each way than the bottom of the crate which you use.

Having the paper cut and ready, the next thing needed is a board one inch in thickness, and of a size so it will go snugly into the crate; that is, fit nicely, but not so tight but that you can jar it out. Get this board out true and nice, having all the corners true and sharp, for you will wish to keep it for years. If it is made of some kind of hard wood, the corners will stay sharp longer and the board keep smoother. Now lay one sheet of paper on the bench and place this board in the center of it each way, which will make your paper project ¾ inch on all sides of the board, if you have done every thing right. Put your fingers under the edges of the paper on one side and one end, and bring it up next to the edges of the board, rubbing it a little so as to make a fold at the sharp or lower edges of the board, when you will work both hands up to one of the corners, which will make the point of the paper stand out away from you. Now fold this point toward you, when you have what is known as the "baking-tin" joint. Now do all the other sides and corners the same, folding each corner *toward* you every time, when you will lift your board out of the tray which has thus been formed, and which will be the exact size of the inside of your crate.

Next place a crate on the bench in front of you, and beyond the paper tray, when you will take the tray by the two corners, pressing the baking-tin joint to its place, and slip these joints into the open side of the crate next to you, which holds the joints from spreading out or bothering you while you are placing it in the crate. Now take the two remaining joints between your thumb and forefinger; raise the tray a little till it is of the right height, when the tray can be slipped easily into its place in the bottom of the crate, the joints all coming in place nicely. With the hand, smooth the paper down on the bottom of the crate, when you have something that will not leak unless your honey is smashed bad enough to run over the top.

Now, should I tell you this is all, I should leave out the part which annoyed me the worst, especially where the crate was made so a certain number of sections just fitted it so that they would not shake around when handled, as they should not. The trouble came when I went to put in the last or middle tier of sections in the crate. All the others could be placed up against the sides of the tray in such a manner that they would not catch on the paper; but when I came to slip down these two last sections, one at each end, the section was sure to catch on the upper edge of the tray, and carry and tear the paper down to the bottom, which made the tray no better at these points than would have been a flat piece of paper over the bottom of the crate. To overcome this I got a very thin piece of tin, just a little narrower than the width of the section I used, when I placed this strip of tin within an eighth of an inch of the bottom of the crate, and bent what stood above over the top of the crate, cutting off what came out beyond the end of the crate. Now, when I came to put in the last section at the end, I took and hung this strip of tin down in the crate over the edge of the tray, which put the tray behind the tin so the section could not touch it, when the section was slipped in place, the tin lifted out by the bent-over end, and all done so smoothly and nicely that there was pleasure in it. Fixed in this way crates never leak unless there is an actual "smash-up;" but this does not hinder any little leakage from soiling the bottoms of the sections. To obviate this, make your crates ¼ inch higher than your sections, and place in the bottom of the tray little strips of wood ¼ inch thick by ¾ wide, and of the same length as the width of your crate, placing them so the ends of the sections can rest on them, when you have something which will not leak, nor soil the bottom of the sections.

Heads of Grain from Different Fields

TWO MORE REPORTS FROM COMMISSION MEN.

1. 24 to 25 section crates. The New York market prefers honey glassed both sides, or heavy paper cartons, but must not weigh over a pound; less would be preferable.

2. 150 to 200 lb. keg and 5-gallon cans. Barrels are out of the question, as there is no demand for large-size packages, and they will bring from ½ to 1c per lb. less when in barrels; 5-gallon cans may bring ¼ to ½c more per lb. than in kegs.

3. One-pound sections or under. The retail dealer buys honey by the pound and retails it by the section; so if he can buy a case of comb honey, 24 sections, say 21 or 22 lbs., he prefers it. Overpounds will depreciate the price 1 to 2c per lb.

4. Sept. 1st to Dec. 1st. Trade opens usually Sept. 15, and the bulk of the comb-honey trade is done between Sept. 1 and Dec. 1; and if I were a honey-producer I would always ship early and take my chances; for, as a rule, the early bird catches the worm.

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5. Would be the means of getting better prices than if there were a glut in California honey. If the honey crop in California is short it stands to reason that New York State honey will do better in prices; for in many cases, if the consumer or manufacturer can buy State goods for ¼ to ½c per lb. more than California honey they prefer State honey, and pay the advance.

6. Too early to judge yet, as the weather has been very warm up to the present time. We have advised our shippers to hold back their consignments till the weather is a little cooler.

CHAS. ISRAEL & BRO.

New York, Aug. 29.

1. Single-tier, containing 20 to 25 combs, one side glass, to display the honey and to caution handlers. This case is to be made of clean basswood or whitewood, as these woods do not "weatherbeat" and discolor as pine does. The cover should be nailed on outside, and not rabbeted in, and should be made roomy so that the sections are not crowded, and will come out easily. Twelve-comb cases are not popular.

2. No difference in price of 60-lb. square cans or 150-lb. kegs; but barrels are not so desirable, and have to sell at some discount in price.

3. Three-quarter pound sections, if well filled, are the best-selling size of section, as thin as possible, thereby displaying more comb surface.

4. From September 15th to November 15th. California honey cuts no figure on this market, and sells only in the absence of white clover.

5. Receipts lighter, so far this season. Both receipts and demand seem to be later, which we think a good indication.

Albany, N. Y., Aug. 17. H. R. WRIGHT.

[These two came after the reports from the commission men that were published in our Sept. 1st number and are, therefore, given at this time.—ED.]

DISPOSING OF UNPROFITABLE STOCK.

My 35 stands of black bees failed to increase. Some of the old ones died off, and their yield of honey was quite moderate, so I decided to dispose of them in the most profitable way. Noticing in GLEANINGS an advertisement from a Cincinnati firm for live bees, I wrote them that I presumed they wanted them for medicinal purposes, and that I had a lot of inferior bees that I would sell cheap. After passing a few letters the company shipped half a barrel of alcohol, and on the 23d of October a member of the firm called on me to oversee the preparation of the apis. We put 35 colonies of bees and 25 gallons of alcohol into a fifty-gallon barrel, and shipped them back to Cincinnati as medicated bees. I have so often read of the weight of a swarm of bees that I expected to get from 5 to 7 lbs. from each hive; but I was quite a little surprised to find these figures divisible by two. The average weight was about 3 lbs. This, I suppose, was due to the lateness of the season.

After killing the bees I extracted probably 1½ gallons of honey, on an average, from each hive. My combs were old, and many of them ill shaped, so I rendered the most of them into beeswax, getting about 2 lbs. to the hive.

I have yet 125 stands of Italian bees, but have a contract with the same firm for another year, so I shall cull out undesirable bees all through the summer, and mark them for destruction at the close of the honey season.

W. W. BRAYSHAW.

DuQuoin, Ill., Feb. 19, 1896.

WILL BEES KILL A HORSE?

Bro. Root:—Your story of Mr. Nicholas J. Van Patten's calf and his bees, page 645, reminds me of an experience of my own, to know which may be of benefit to some of our friends should they get into a position similar to mine.

It was four or five years ago when I hitched a spirited five-year-old English shire mare to a buckboard to visit a friend, in company with one of my boys. A three-months-old colt followed the mare. After a ride of five miles on a pleasant forenooon our friend's farm was reached. He had his hitching-rack near the gate, while about 20 feet on the other side of the fence, under the shade of cherry and pear trees, stood his hives of bees, similar to my own arrangement on the farm. My friend was down in the corn-field. We hitched our mare, and went down to meet him. The bees were flying lively. When my friend was reached we saw our mare rearing and trying to tear loose. After awhile she quieted down, and my friend's son motioned and hallooed to us; but at the great distance we did not know what he meant. My son went up; and when near the house his motions could not be misunderstood. There was danger, and we lost no time in getting up. We found the mare with her neck hanging over the rack. A swarm of bees had settled on her head between the ears, and she had, apparently, given up to the unavoidable. Mare and colt were covered with bees. I tried in vain to extricate the latter from under its mother. There was no time for long consultations. I unhitched the mare, pulled her around, and, when the wheels of the buckboard went over the colt, it jumped up and joined us in a slow walk down the pike. Walking alongside of the mare I mashed between my hands every bee of that swarm. When the head was cleared we stopped, and ears and nostrils were cleared out. After the bodies of mare and colt were cleaned of bees (and they sat everywhere) we went on. They were as docile as lambs, so I could do with them all I pleased except make them go faster than a slow walk. We went through the Blue River. In a deep place I immersed the colt, and, with my hat, gave the mare a thorough soaker. After they had been in pasture for a week they still showed swollen heads, but

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both got over it nicely. The mare shows today not the least fear of bees, and never flinches, no matter how thick they fly around her.

If I had not been about, I believe that an item would have gone the rounds in the papers of a valuable mare and her colt being killed by bees near Morristown, Ind.

Cincinnati, O. CHAS. F. MUTH.

SEVEN-TO-FOOT SECTIONS, ETC.

My bees are doing finely. Honey here is 8 cts. per lb. in comb. I shall lose 300 lbs. of honey by not having the money in time to send for sections. I use nothing but 7-to-foot sections. They do not bulge their combs, and I get from 25 to 26 lbs. in 28 sections. I should think more would use them. A. A. JOLES.

Big Rapids, Mich., Aug. 31.

A WARNING.

I trust you will allow me space to warn readers of *B. B. J.* against risk of serious trouble after the honey-flow has stopped, as may be seen by what follows: I had been removing my surplus during the week and previous weeks, and had left my extractor, cappings, strainer, dishes, etc., all wet with honey, together with the jars I had used for bottling, exposed in my work-room. This was its condition at 6 A. M. on Saturday, the 1st inst., when I left it with the window wide open, with injunctions for others to shut at eight o'clock before the bees began flying for the day. But the others forgot; and on going to my room at mid-day I found it *full* of bees busily engaged "cleaning up" the loose honey for me. When they had got all they could in this line, they flew around the house in a particularly savage way, searching for more "spoil," and while thus engaged they had occasion to pass our kennels, when a valuable cross-bred "Bedlington" hound thought he would amuse himself by catching a few of them, so he started and killed some, and very soon there was a smell of formic acid, and, consequently, a "row," which ended by the dog having to be rescued, covered with bees, after he had in the affray swallowed a few scores of them. Two other dogs got stung, and also several people. The poor hound first mentioned lived only till midnight, when he died while asleep through drinking sal volatile and carbonate of soda. We rubbed him with ammonia and put him in soda baths, but all was of no avail, as he was too badly stung. Poor fellow! he will be missed in the district, as he was a champion fox-drawer (and killer) when "to-ground." I have had a hunter lent for four seasons for his splendid work. I am having his skin stuffed to preserve the dog's memory and his reputation for pluck. He always had a hatred of bees and wasps, and I had on several occasions to stop him scratching at wasps' nests.—*C. B. Elmhirst, Farnham, Knaresborough, Yorks.—British Bee Journal, August 13.*

SELLING THE HONEY CROP.

During the next four months nearly the whole of the honey of 1896 will be sold. Already some thousands of pounds have been placed upon the Chicago market, and the new comb honey is fine. But thus early some large producers have made a mistake, which we fear will tend to lower the prices here, and keep them down for the rest of the selling season.

Last week we had occasion to go over on South Water Street—where nearly all the large commission dealers do business—and we found that one firm, who are almost new in the honey-business, had received a number of thousands of pounds of nice white comb honey which they were offering at 11 cents per pound. Just a few doors away, and the same time, honey-dealers who have been long in the business, and understand it, and who try to keep up the market prices, were holding the same grade of honey at 13 cents per pound. Now, why the two cents' difference in price? Simply for this reason: The new firm were only anxious to get their commission on the sales, not caring a straw how much or how little the honey would net the producer.

What surprises us is, that large producers are so careless as to ship to such firms; for really they lose on their own crops, and also cause others to lose. Such actions certainly do not show good business sense, nor is it just to other honey-producers.

We should think that, after the "Horri-ble" experiences of last year, our older readers would be smart enough to keep out of the claws of the vulture-like commission men, and ship only to those who are satisfied to deal honestly.

We want to repeat what we said last year—it is this: Bee-keepers are discouraging honest honey commission men by shipping their honey to new and untried firms who will sell the same honey to neighboring honest dealers at a less price than bee-keepers would think of selling the same honey to the aforesaid honest dealers. Do you see the point? Let us explain.

Suppose *we* were old and tried honey-dealers here, and were quoting in the bee-papers 13 cents per pound for fancy comb honey—the correct market price. Along comes a new firm, who may appropriately be called Snide & Co., who privately quote the same grade of honey at 15 cents per pound. A bee-keeper ships to them 10,000 pounds. The honey arrives, and Snide & Co. take it to their store. We happen along just after it is unloaded, and Mr. Snide offers to sell us the honey for 11 or 12 cents per pound. We buy it, of course, for it is one or two cents less per pound than the shipper would have thought of letting us have it for.

Well, what does the shipper get for his honey from Snide & Co.? He gets probably a net price of 9 or 10 cents per pound—perhaps in some cases not so much, and sometimes "gets left" entirely—is simply euchred out of the whole thing.

Who is to blame that the producer didn't realize more for his honey? Why, the bee-keeper himself. He lacked sense. He was foolish enough to think that a *new* firm could secure better prices than an *old* and established one that quotes actual market prices.

And thus are the toiling bee-keepers swindled by various firms, all of whom should be compelled to wear the name of "Snide & Co.," so that bee-keepers would know, after a few expensive experiences, that all firms by that name are really *snides*, and should be avoided as one would shun the smallpox.

But will honey-producers ever be wise in these matters? Yes, some will; but many will plod on and fall into the same old snares, time after time. Yet there is little excuse now for any reader of a good bee-paper being "caught," for the best firms generally either quote the

market prices in the papers, or their names are found therein, and all others should be avoided, unless you wish to take your chances, or are acquainted with them, and know that they will deal fairly. Of course, the honey-shipper who doesn't take and read any of the bee-papers ought to get swindled, and deserves no sympathy if he meets with a loss that might have been avoided had he been a subscriber to one or more of the best bee-papers.—*Editorial in American Bee Journal.*

C. R. HORRIE & Co., of Chicago, the firm I referred to in our previous issue, and also in a footnote to one of the Straws in this issue, are given a little "free advertising" in the *American Bee Journal.* Last year this same firm, it seems, quoted above the market, and for the same reason, probably, they are doing so this year. Referring to this, among other things, the editor of the *American Bee Journal* says:

When they mailed that letter, they know that the best comb honey was bringing not over 13 cents per pound in a wholesale way. And yet they quoted 15 to 16 cents. Their scheme is, by quoting high prices, to get bee-keepers to ship them honey on commission, which last year in a number of instances they sold for about what they were offered, and remitted the shipper a net price of anywhere from 7 to 10 cents a pound for white comb honey.

SHALL WE EXTRACT AND FEED?

IN times gone by we have set it down as a rule that it did not pay to extract white honey and then feed the bees syrup afterward; that the labor of extracting counterbalanced the difference in value between sugar syrup and extracted honey. But is that true? At the very low prices of granulated sugar, good winter syrup can be made for 3½ or 4 cts. a pound, and good extracted honey brings anywhere from 5 to 6 cts. on an average, according to the honey market published in our last issue.* The salvage, though not great, is perhaps sufficient to warrant us, at least in some cases, extracting, more especially as the syrup is a better winter food than honey; and, pound for pound, it goes farther. It is agreed, I think, that a colony will consume more pounds of honey than of syrup. If the honey in the first place is amber or dark, better let it remain in the brood-nest unless it is vile enough to kill the bees.

ANOTHER BUILDING FOR THE HOME OF THE HONEY-BEES.

NOTWITHSTANDING the hard times all over the country, we find it necessary to put up another large building at the Home of the Honey-bees. This covers the largest area of ground we ever built on, and is designed to hold a portion of our dried lumber for sections. We have had another smaller building for the purpose, but this had long since grown inadequate for the supply. Our lumber, as fast as it dries to the proper point outdoors, sticked up, is to be put into this large building, and piled up solid, and held in reserve. Our object is, of course, to keep a larger percentage of our lumber white; for after it has become dry it is liable to become badly checked and stained, and, if it stands too long, half rotten. Moreover, dry lumber wet by rain or snow is not as workable, and does not make as nice sections as lumber that is dry and which has been kept dry.

The size of the new building is 52 x 120 feet, and will hold comfortably 600,000 feet of basswood lumber for sections. All the other buildings have been about 40x100. This makes the sixth large building besides a number of other small ones that go to make up the manufacturing plant of the Home of the Honey-bees.

THE USES OF HONEY.

A VERY good article on the use of honey appears in the *Ladies' Home Journal.* Among other things are given a number of cooking-recipes using honey, which I trust our lady readers will try and report on. They are as follows:

HONEY FRUIT-CAKE.

Four eggs, five cups of flour, two cups of honey, one cup of butter, one cup of sweet milk, two teaspoonfuls of cream of tartar, one teaspoonful of soda, one pound of raisins, one pound of currants, half a pound of citron, one teaspoonful each of cloves, cinnamon, and nutmeg. Bake in a slow oven. This cake will keep a long time.

HONEY-COOKIES.

One quart of honey mixed with half a pound of white sugar, half a pound of butter, and the juice of two lemons. Stir this mixture very hard, then mix in gradually flour enough to make a stiff paste. Cut into round cakes and bake in buttered pans.

HONEY GINGER-SNAPS.

One pint of honey, three-quarters of a pound of butter, two-teaspoonfuls of ginger. Boil together for a few minutes, and, when nearly cold, sift in flour until it is stiff enough to roll. Cut in small cakes and bake quickly.

HONEY SPONGE-CAKE.

One cupful of honey, one cup of flour, five eggs. Beat the yolks and honey together; beat the whites to a froth; mix all together, stirring as little as possible; flavor with lemon, and bake quickly.

HONEY TEA-CAKE.

One cup of honey, half a cup of sour cream, two eggs, half a cup of butter, two cups of flour, scant half teaspoonful of soda, one teaspoonful of cream of tartar. Flavor to taste.

HONEY POPCORN-BALLS.

One pint of honey. Put it in a frying-pan and boil until very thick, then stir in freshly parched corn, and mold into balls when nearly cold.

The appearance of such an article in a journal of so wide a circulation and influence will do not a little to stimulate the demand for honey. By the way, the *Ladies' Home Journal* is a periodical that I always take pleasure in recommending for its good morals and for the valuable matter that it contains in each issue.

* Honey Column for this issue is not made up at the time of writing.

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SPILLED HOT WAX; A KINK WORTH KNOWING.

DID you ever spill hot melted wax on the floor—your wife's nice kitchen floor—and then, astounded, query how you did it, and then wonder what was the best thing to do? Perhaps you have let it cool, and then scraped it up with a knife or scraper. You no doubt discovered that it was almost impossible to get it all up in this way, and that even then it had clinging to it more or less dirt and woody fiber.

A few months ago we were rendering in our large wax-tank, preparatory to caking, somewhere about 1000 pounds. It suddenly sprung a leak, and the wax spurted in all directions, all over the floor. There was a hurly-burly, of course; but Mr. Weed, the man who has made such great strides in making foundation, and who certainly is an expert in working wax, as soon as he saw the mishap ran for a pail of *cold* water, and threw it on the floor over the wax. Several more were thrown on, and, presto! the wax, being lighter, floated on the water; in a couple minutes more it cooled in large thin cakes, perfectly clean and nice. These thin slabs were picked up and put among the good supply of wax. In the mean time the leak had been stopped.

The next time you spill hot melted wax on the floor, try dashing a pail of cold water on top of it.

THE HONEY SEASON FOR THE UNITED STATES; REVISED REPORT.

IN our last issue, it will be remembered, I could give only a partial report, and from this report it appeared the season was not as good as was at first expected. Now that all the reports are in, it appears that the season was a little better than the partial report of our last issue made it—particularly for some States. It appears that the discouraging reports came first, and the more favorable ones later.

Taking the States in order, it would seem from the latest advices that the season has generally been good for Florida; same for Georgia. In our last issue Illinois seemed to be generally a failure, with the exception of Dr. Miller's locality. Later advices confirm it. As in our last issue, so in this, Indiana reports a general failure. Iowa comes out in marked contrast. With one exception, all the respondents for that State report the season "good;" "very good;" "best known in years," etc. Only one respondent answers for Kentucky, and he calls the season there poor. The States in their alphabetical order between Iowa and Michigan are the same as reported in our previous issue. Michigan, generally reported as having a poor season, in our last issue, is now reported as having anywhere from good to a fair season.

The year has generally been good in Missouri; indeed, one man says it is the best they have had in seven years. Only two respondents answer for Nebraska, and they both report good seasons. One answers from North Dakota, calling it fair. In our last number, New York was reported as having had an indifferent season; for this issue it is reported from good to fair. What was true of New York was also true of Ohio. Pennsylvania, according to our last issue, had a poor season. A larger number answer for that State now, and all report, with one exception, poor and very poor. Tennessee is the same as the last issue reported; so also are Vermont and Virginia. Utah is represented by two respondents, who call the season very good. Wisconsin, not reported at all in our last issue, is reported from fair to good.

DEAD BROOD, PICKLED BROOD, OR WHITE FUNGUS.

A CERTAIN malady among bees has been noticed by bee-keepers all over the country for the past three or four years. It was no doubt prevalent, more or less, before that time, but was probably confounded with and called foul brood, which it greatly resembles. In our issue for Aug. 15, page 609, I spoke of its coming more and more into prominence, and gave some of the symptoms, and also expressed a hope that some scientist with a good microscope would give his attention to it. In the mean time it seems that Dr. Wm. R. Howard, of Fort Worth, Texas, the author of a most excellent work on foul brood—the very best treatise, in my estimation, that was ever published—has been studying this peculiar disease, and now has come out with an article with illustrations in the *American Bee Journal* for Sept. 10. The symptoms of the disease as he describes it accord very well with what I have noticed in our own yard, and with dozens and dozens of samples that have been sent us by mail from all over the country, by bee-keepers, asking whether it was foul brood.

After a most thorough microscopic examination, Dr. Howard concludes that the cause of the disease is "a species of aspergillus, a white fungus or mold." As pollen is a favorable medium in connection with the liquid food he names it *Aspergillus pollini;* and then he goes on to describe why and in what way its growth affects the larva. This is what he says:

> When pollen is added to the liquid food, which occurs late in larval life, there being a sweet semi-liquid mixture, the proper medium is present for the growth of the fungus, which at once starts a ferment in the alimentary canal of the larva, breaking through and permeating the entire liquids of the body, giving an acid reaction (chemical analysis proves the presence of acetic acid, or vinegar). This growth takes place generally within three days, the brood dies slowly, keeping up for some time a wriggling motion.
>
> When no more food (sweets) is taken, the medium is soon exhausted and the fungus ceases to grow; the acid condition of the brood prevents the growth of putrefactive germs from the air, so that decomposition does not take place, hence no foul odor; the brood is *pickled in its own liquids.*

This accords very well with a letter just at hand, from a bee-keeper who says that he finds a great deal of dead brood in his hive; and who independently, and without the aid of a microscope, concludes that the "foamy honey" in the same combs in which the disease appears is the cause. When it is remembered that honey, when it has foamed, has "worked," and is turned into an acid condition, we can very easily believe that Dr. Howard may be and is right in saying that the brood is pickled in its own liquid.

THE ONTARIO HONEY SEASON.

SINCE the matter concerning the honey season for the United States went to press (see another column) the *Canadian Bee Journal* has come to hand, giving reports from a large number of bee-keepers all over Ontario. It seems the editor of that paper sent out a series of questions, and replies seem to show that Ontario has had an unusually good flow of honey. With scarcely an exception, all report a good flow from basswood; the next best in their order are clover, thistle, and buckwheat. It would look as if Ontario has had a far better season than any State on this side of the line unless it be Iowa. The bees are also reported to have wintered well in Ontario.

LOOK OUT FOR THE HONEY-SHARKS.

DON'T, *don't* ship honey to strangers, even if they do write plausible letters and give bank references. A syndicate of sharks this year are quoting honey at high prices, and wanting to purchase outright. Their scheme is to get the producer to make a *bona-fide* sale, and then the bee-keeper will wait and never get his pay, because these swindlers are execution-proof; in other words, not collectable. When honey is sent on commission, the commission man is liable if he does not make some sort of returns. I'll have more to say on the subject in our next.

THE PROPOSED CONSTITUTION FOR THE NEW SOCIETY OR UNION.

THE following, from Dr. A. B. Mason, will explain itself:

It was my intention to submit the inclosed constitution in this form to the other members of the Amalgamation Committee, and I did so yesterday, Sept. 8, for their criticism and suggestions; and then, when as well prepared as we could do it, present it to the North American at Lincoln, as the report of the committee. But I have been urged by you and the editor of the *American Bee Journal* to have it published in the bee-journals, so as to give all an opportunity to make any suggestions they may see fit, *before* the convention meets; and just to get rid of importunities (no, not just for that, for I guess your way is the best after all), with a few touches I send it to you.

Now, to hasten matters, let each one who wishes to make any suggestions write them out in full, *wording them just as they would like to have them worded*, and send directly to me, so as to reach me not later than October 3d, and I will see that what they send me is laid before the convention at Lincoln.

You know I'm in favor of calling the organization the "North American Bee-keepers' Union," and don't you let a single one who writes me criticise that name; just criticise the proposed constitution, and let *me* alone. Direct all letters to

A. B. MASON, Station B, Toledo, O.

ARTICLE I.—NAME.

This organization shall be known as the United States Bee-keepers' Association.

ARTICLE II.—OBJECT.

Its object shall be to promote and protect the interests of its members, and to promote the general interests of the pursuit of bee culture.

ARTICLE III.—MEMBERSHIP.

Any person may become a member upon the payment of one dollar annually to the Secretary or General Manager, except as provided in Section 8 of Article VI. of this constitution, or an Honorary member by a majority vote of the members present at any regular meeting.

ARTICLE IV.—OFFICERS.

The officers of this Association shall be a President, Vice-president, a Secretary, and a Board of Directors, which shall consist of a General Manager and six directors, whose term of office shall be for one year, or until their successors are elected and qualified; and the Director, aside from the General Manager, receiving the largest number of votes shall be chairman of the Board of Directors. Those who are now officers of the National Bee-keepers' Union shall constitute the Board of Directors of this Association until their successors are elected and qualified.

ARTICLE V.—ELECTION OF OFFICERS.

SEC. 1. The President, Vice-president, and Secretary shall be elected by ballot by a majority of the members present at each annual meeting of the Association, and shall constitute the Executive Committee.

SEC. 2. The General Manager and the Board of Directors shall be elected by ballot during the month of December of each year by a majority of the members voting; blank ballots for this purpose, with a full list of the membership, shall be mailed to each member by the General Manager; and said ballots shall be returned to a committee of two members who shall be appointed by the Executive Committee, whose names and postoffice address shall be sent to the General Manager, by said Executive Committee on or before the 15th of the November preceding the election. Said committee of two shall count the ballots and certify the result to the General Manager during the first week in January.

ARTICLE VI.—DUTIES OF OFFICERS.

SEC. 1. *President.* It shall be the duty of the President to preside at the annual meeting of the Association; to deliver an address at the next annual meeting after being elected, on some subject of interest to bee-keepers, and to perform such other duties as may devolve upon the presiding officer.

SEC. 2.—*Vice-president.* In the absence of the President the Vice-president shall perform the duties of President.

SEC. 3.—*Secretary.* It shall be the duty of the Secretary to keep a record of the proceedings of the annual meeting; to receive membership fees; to furnish the General Manager with the names and postoffice address of those who become members at the annual meeting; to pay to the treasurer of the Association all moneys left in his hands after paying the expenses of the annual meeting; and to perform such other duties as may be required of him by the Association; and he shall receive such sum for his services as may be granted by the Board of Directors.

SEC. 4.—*General Manager.* The General Manager shall be Secretary of the Board of Directors, and shall keep a list of the names of members with their postoffice address; receive membership fees, and be Treasurer of the Association. He shall give a bond in such amount, and with such conditions, as may be required and approved by the Board of Directors, for the faithful performance of his duties, and perform such other duties as may be required of

him by the Board of Directors, or by this Constitution.

SEC. 5. At the time of sending the ballots to the members, for the annual election of the Board of Directors, he shall also send to each member a statement of the financial condition of the Association, and a report of the work done by said Board of Directors.

SEC. 6. The Board of Directors shall pay the General Manager such sum for his services as said Board may deem proper, but not to exceed twenty per cent of the receipts of the Association. Said Board shall meet at such time and place as it may decide upon.

SEC. 7.—*Board of Directors.* The Board of Directors shall determine what, course shall be taken by the Association upon any matter presented to it for consideration, that does not conflict with this constitution; and cause such extra, but equal, assessments to be made on each member as may become necessary, giving the reason to each member why such assessment is required; provided that not more than one assessment shall be made in any one fiscal year, and not to an amount exceeding the annual membership fee, without a majority vote of all the members of the Association.

SEC. 8. Any member refusing or neglecting to pay said assessment as required by the Board of Directors shall forfeit his membership, and his right to become a member of the Association for one year after said assessment becomes due.

ARTICLE VII.—FUNDS.

The funds of this Association may be used for any purpose that the Board of Directors may consider for the interest of the members of the association and in the interest of the pursuit of bee culture.

ARTICLE VIII.—VACANCIES.

Any vacancy occurring in the Board of Directors may be filled by the Executive Committee; and any vacancy occurring in the Executive Committee shall be filled by the Board of Directors.

ARTICLE IX.—MEETINGS.

This Association shall hold annual meetings at such time and place as shall be agreed upon by the Executive Committee.

ARTICLE X.—AMENDMENTS.

This Constitution may be altered or amended by a majority vote of all the members, provided notice of said alteration or amendment has been given at a previous annual meeting.

THE NO-DRIP SHIPPING-CASE.

WE have advertised these for some time; but supposing that nearly every one knew about the use of paper trays in the bottom of the shipping-cases, and little sticks to raise the sections off from the said bottom, we have not been sending along any directions. Mr. G. M. Doolittle, in his usual department, describes exactly such a case as we have been selling. A few days ago, however, one of our customers complained that our shipping-cases, or at least the ones we sent to him, were too deep for the sections; and that, in his opinion, our packer, evidently recognizing the fact, had very kindly (?) put in some little sticks which he (the customer) thought were to be piled *on top* of the sections to fill out the space between them and the cover. This, he thought was a rather botched way of sending out shipping-cases.

It did not take us very long to explain to him that the cases were made so on purpose, and that his trouble was due to the want of directions. In another column Mr. Doolittle describes this form of shipping-case; and it is no other than he himself and other bee-keepers of York State and elsewhere have been using with much satisfaction, and which we ourselves adopted during the past season because of the request of bee-keepers and commission houses.

NO DRIP SHIPPING-CASE.

The no-drip shipping-case is the same as any other case, only a trifle deeper. With each case we send along a sheet of paper a little larger than the inside dimensions of the case. This is folded up into a paper tray, as shown in the annexed cut, just under the shipping-case. It is then inserted, strips laid in 4¼ in. from center to center, and nailed as shown. Perhaps some of you may ask, "But *why* these strips? Why not set the sections right down on to the paper tray itself?" Did you ever notice that, when sections get to dripping, and stand upon a flat surface, how those sections will stick and hang to the surface? The little film of honey that enters between the surface and the bottom of the section seems to act just like so much glue. To remedy this, the sections should be set up a little on cleats or strips of wood thick enough to raise them up anywhere from ⅛ to 3/16 from the paper tray. Now, then, if any drip runs down it runs on to the paper tray, and does not come in contact with the sections, except that it may touch where the corners of said sections rest on the cleats. Ever since we began sending out these shipping-cases, we have received the hearty approval of bee-keepers and commission men. The idea is old, and has been in use for a number of years. It was originated, I believe, by that prince of American bee-keepers, Capt. J. E. Hetherington, of York State, the man who has the reputation of owning and operating the largest number of colonies of any one bee-keeper in the world. One of these cases was sent to us by a friend of the captain's two or three years ago. I knew at the time it was a good thing, but neglected to bring it before our readers.

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OUR HOMES.

Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh.—GEN. 2:24.

There are many things in this world so beautifully arranged, when we come to understand the matter fully, that our hearts are involuntarily raised to God in thanksgiving for his great and precious gifts. Somehow or other of late I have been thinking of the marriage relation in connection with the institution that we call home—the relation of husband and wife. Adam and Eve started the first home. No doubt it was a model home, and they were a model couple until they transgressed and fell. I love to see married people together. I enjoy seeing them side by side when they are first married, and stand before the great wide world, each one saying by act if not by word, "We two are husband and wife." No good man ever feels ashamed to acknowledge he is a married man; and I do not think I ever heard of a woman who tried to make out that she was not a wife when she really was. You see, as a rule women are a little readier than we men to bear their part of the matrimonial yoke. Well, I not only love to see the young bride and groom, but I love to see the young couple working together to build up a home. I love to see them when they proudly show to friends and neighbors the first baby; and when I am visiting homes I love to hear the parents say, "Mr. Root, these are our children;" and I enjoy hearing them say something to the effect that this is the little group that God has given them to train and fashion in wisdom's ways. I love to shake hands with the grown-up boys too, when they are so big that the mother and perhaps the father too is obliged to look up a little. If they look up because the stalwart son is taller than either, it is well; if because the grown-up son and daughter are better educated, more talented, and more skillful than either the father or mother, better still. The parent is rarely jealous because the child excels. Then, again, I like to see the *gray-haired* couple show me their grandchildren; and it rejoices my heart exceedingly to see the old couple show a loving regard for each other. Yes, it rejoices my heart to see them *lovers* still after a family has been reared; for, inconsistent and unreasonable as it may seem, Satan often gets into the home, even *after* the children are grown up and gone. Dear aged brother and sister, if you in your old age have ever felt like being cross and harsh toward each other, please believe me when I tell you that Satan rarely leaves any couple entirely alone after the honeymoon days have passed by and gray hairs have come. Look out for him. It is now less than 48 hours since I was tempted to speak harshly toward the dear partner of my sorrows and joys. I did not speak a word, mind you; but even a glimpse of the thought made me feel guilty. I said to myself, "God have mercy on me a sinner," for I was a sinner to let Satan come so near that I even *heard* his suggestions. After my little prayer had banished him entirely, I looked at the dear face across the table, and imagined how it must have pained her gentle spirit had I spoken it out loud; and then I would not have done it for worlds. O dear friend, let me beg of you to be careful. Little do you know how you may look back in memory and remember every harsh and cruel word if you have allowed yourself to go so far as the latter. Remember, the relation between you two was framed by the great God above in the beginning of the world; and it stands at the beginning of *every thing* that is good and pure and holy.

A few days ago a letter was put into my hands that has stirred me more than any thing else that has come for a long while. The dear brother who wrote it never dreamed that it would be used for publication; but yet I know he will not object when I tell him that his letter may prove to be a message to many a home where GLEANINGS goes. Here it is:

Bro. Root:—With a sad heart and streaming eyes I write you this letter. You told me in your last letter to read a certain chapter. I can't read it now, for the joy of my life is gone. The greatest comfort on this green earth was my wife. When you wrote about Mrs. Root's sickness, I tried to read it in a stammering way; but the tears flowed down Belle's cheeks (I always called her "Belle"). We have lived together fifteen years, as happy as ever two people lived, I think. God blessed us with five children (three girls, two boys), here in a little cabin in the West Virginia hills. She always read your paper with interest, especially the religious part. She was converted in 1878, when only 17 years of age. When we were married she joined the M. P. church. She was the pastor's daughter (of the same church). I was a hard-hearted sinner, and had been through many a revival meeting; but soon after we were married she said to me one day with a sad heart while we were at the table that there were two things she missed. I asked what, as I always wanted to please her. She said it was family prayer and thanks at the table. Of course, this put me to thinking. I had become hardened in sin; but she did not stop there. Five long years she prayed for me (ofttimes when I was asleep), and shed many a tear for me. She was a full believer in prayer. At last I gave up and told her I would try. I will not tell you what strange things took place when I was converted, and how God *worked* on me, for you may get tired of this kind of letter. But I want to tell you that my dear wife took sick Aug. 12th, while I was away a day and a half; and when I came home I found her very poorly. I tried to get her to take something, but she did not want to doctor any. I sent for the doctor, however, and he thought it would be no serious trouble. Three days and nights he doctored, but no relief. Now, Bro. Root, the darkest hour began to come. Dark clouds began to rise thick and fast. I became restless—was here and there, finding no relief. We have an Indian doctor 11 miles away, so Sunday, at dark, I started for him, as he had doctored my wife and had always helped her. Oh! you don't know what a night, with tears falling fast, thinking of a loved one at home, racked with pain, awaiting my return. Then I thought of you and your prayer for Mrs. Root, so I prayed in anguish of heart that long 22 miles. The doctor came, and seemed to help for awhile; but she had other troubles that seemed to all work against her. The dear little baby, only two years old, was usually her first thought in the morning and last at night. She seemed to be her greatest anxiety. I am not boasting at all when I say everybody who sees her speaks of the beauty and brightness of poor little "Clista." What will become of her now?

When you speak of things to eat I think of my oldest daughter, who can bake as good light bread (or better) as I find in traveling this country over; and she is now doing the housework too, at only 13 years of age. I must say this: She had a good mother's training, which was a Godsend to me. I verily believe if it had not been for *her* tears and prayer I should have been *lost* for ever. Oh! I thank God for good women. The thought has come to me, shall I prove faithful without her? May God help me! Oh! pray for me that I may never give up till the last battle is fought, so I can lay down the cross and take up the crown.

In my dreams I saw A. I. Root last night, and was telling him of my sorrow. What a blessed thing it is to have Christian friends to tell our sorrows to! I never in all my life saw any person suffer as dear Belle did all through the long two weeks. She prayed that God might come and relieve her from her pain; so on Wednesday night, after all this long suffering, Jesus came to her. Her brother stooped low and listened, and heard her speak of "white." Then she said, "Lord take me; is this not enough?" Just a night or two before she was taken sick I called on her to pray, as we did it by turns when

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she was well. I thought she prayed more earnestly that night for the training of her little family than ever before.

It seems that I could give up every child I have better than this dear companion. Oh the long and lonely hours at night, when every thing is still! Bro. Root, you are a stranger to me; but your picture has made such an impression on my mind that you looked natural, as I saw you in my sleep; so if we never meet in this world I believe I shall know you on the other shore. Pray for me that I may follow my loved ones, training and teaching my children to love the Lord and make an undivided family in that sun-bright clime.

Benson, W. Va. ABBOTT CLEMANS.

Dear brother Clemans, let me remind you in this, your hour of trial, how much you have to be thankful for compared with those who have no hope or faith in God. Your earnest prayers, it may have seemed to you, were not answered—that is, God did not see fit to grant what you asked; but as time passes I am sure you will discover that God *did* hear and did *heed*, nevertheless. It is not his holy will that our prayers should all be answered. You will remember that the prayer of the dear Savior, uttered in such anguish of spirit, was not granted. He ended, "Thy will, not mine, be done," as we should always end our petitions. But God gave him grace to meet the trial, and he will give you grace too. This deep affliction that you are passing through will wean you in a measure from earth, and at the same time draw you toward heaven and heavenly things. The dear companion has been called away; but her works do live after her, and you are finding them already in the care and companionship of that little family. May I venture to ask you to be careful that that dear child of thirteen does not overwork herself? Stand by her as you stood by your wife. Remember she is but a child still, and will, perhaps, long for childish joys and pleasures. Very likely she will be strongly inclined to be self-sacrificing. Do not let her go too far in that way. You did all you could to save your wife. If there are physicians in the world who could have treated the case better it was not in your power to procure them. You did the best you knew how, constantly asking God to guide you. Let this thought comfort you. There is a limit to human responsibility; and when we have done all that we can, and have placed the whole matter in God's hands, then we should let the matter rest there. Under the circumstances, he has seen fit to take the dear companion from your home. When I first received the letter I took it over and read it to Mrs. Root; then I took it down to the dear old mother in the evening, and read it to her. She said it ought to have a place in the Home Papers.

When you speak of seeing my poor self in your dream, it brings to me a feeling of unworthiness. You felt that it would be a comfort to you to tell *A. I. Root* your troubles, did you? When I first read it, and, in fact, every time since, it has seemed to me as though I must take my wheel and hunt up that little home, and sit down and have a talk with you and with the dear children. It reminds me of the time when I was away off in Michigan, where a dear brother gave me the old armchair and the family Bible, and asked me to read to him and his motherless children from the precious words of scripture. Perhaps it will some time be my privilege to meet you and your little flock. If so, I hope you will find me not too *great* a contrast from what you saw me in your dream. Is it really possible that the readers of GLEANINGS have been thinking of me in that way in their times of trouble?

Now, dear brother, the lesson God has permitted you to carry to the thousands of homes where GLEANINGS goes is this: To bid the husband and wife and the father and mother be gentle toward each other. Neither one of you knows when this relation you have enjoyed together so long may be broken off. When you are tempted to be harsh or unkind; when you are tempted to argue or dispute with each other, stop and think, dear friends, of brother C. at the present time. Sometimes you start a little discussion or disagreement almost in jest. You let it go on just in pleasantry or foolishness; and before you know it, something harsh or unkind has been said. Do not do it. Do not in jest say any thing that sounds unfeeling or disrespectful. God instituted the relation that exists between you two. He has sealed and cemented it by giving you children, and may be grandchildren. Do any of you know how a *child* feels when he discovers that his parents are not getting along well together? I can think of nothing more painful. But a few days ago I heard of a home where the father and mother had not spoken to each other directly for several months, and yet they have a tolerably good-sized family of grown-up children to feel hurt and embarrassed by this state of affairs. May God forbid! and may married people throughout our land take warning in time!

But a few days ago I saw a statement somewhere, to the effect that the number of divorces granted in Ohio during the past year was away up in the thousands. You had better put up with any thing, or *bear* with almost any thing, rather than separate; and even if you decide to separate, do not think of a divorce. Let the arrangement be so that each or both of you can repent and get back. Do not let your little petty disagreements come out before the world. Before the world you have stood together as man and wife—perhaps for many long years. Now, even if you have troubles and trials, be careful about letting the *world* know it. If your companion has peculiarities that are not pleasant, do not speak of it to a living soul. Make the best of it; ask God to help you; and let me say again what I have said before, that, where even *one* of the parties is a devout Christian, the other is pretty sure to follow sooner or later. See what friend Clemans has told us. His wife prayed for him five long years; and while she prayed she lived a life *consistent* with that prayer, and God gave her her reward.

I can not tell just now why I have been impressed to speak in this way to the readers of GLEANINGS. At first glance the letter I have given you would hardly suggest the matter; and yet I do believe that God in his providence has impressed me to take up this subject. If it should prove to be a message sent from God to you, dear brother or sister, you can without tell me about it. Whenever I hear of a divorce it gives me a feeling of sadness and pain. Perhaps the Bible has not said so, but I can tell you, dear friend, that there will be no divorces in heaven, and God's calls to us here on earth are not in that direction. Perhaps it would not be well to tell even your old friend A. I. R. your troubles and trials in getting along in the home where God seems to have placed you. My advice is, remember, not to tell *anybody*. But you can tell with safety and security all your troubles to the dear Savior. He has never yet turned any one away, and he will give you better advice than any mortal on earth can give. Make him your friend and confidant in trial. When tempted, do not, I beg of you, forget to turn to him in prayer. Take the little prayer that I have given you—"Lord, help;" and remember that your friend who is writing these words is constantly praying for the fathers and

mothers in every home where GLEANINGS goes. May you be a united family here on earth, proof against every suggestion of the prince of darkness; and may you be united, *too*, in that heavenly home of which we know so little, but where, we may be sure, we shall all meet again.

ON THE WHEEL.

"Mr. Root, you have never been out to visit my apiary, and yet you go around on your wheel a good many miles further off. Just come out and see how we have got things fixed."

The above remark was made by a young man whom I have seen frequently at our place buying bee-supplies, etc. Among other things, he told me they had a field of 17 acres of buckwheat in full bloom, and it was only seven miles from my home. Yesterday, September 1, I found time to get away for a few hours, and was very agreeably surprised when I turned up at the residence of M. C. Kramer, Mallet Creek, O. The lawn around his house and buildings made me think of T. B. Terry's. One of the prominent objects at the further end of the lawn was a very pretty windmill completely inclosed, rising above quite a good-sized building, with a tank and other appliances connected therewith. From this windmill and tank, pipes are laid so as to furnish water to every one of their numerous buildings on their 300-acre farm. Not only this, but there are pipes for attaching a hose in three or four places wherever water may be likely to be needed around the premises. I asked if those pipes would not freeze up in winter.

"Oh, no!" said Mr. Kramer; "for before freezing weather comes we draw off the water; then the plug at the top of the pipe is screwed in while the pipe is full of air. When they are thus arranged, no water can get up into the pipe to freeze, until the plug is removed so as to let the air out."

I mention this because we have gone to considerable expense in our hot-beds and cold-frames that we may empty our pipes of water so they may not freeze in winter.

The apiary is located in the orchard. There are about 75 hives nicely painted and tastily arranged. When friend K. made the remark that they were not yet through extracting, I expressed some surprise; but on going into the honey-house I saw sealed combs of honey tiered up in the hives waiting for a spell of hot weather, so the thick honey could be thrown out. Several large cans were filled to the brim. On sampling the honey I uttered an exclamation of surprise. It was very thick, of crystal transparency, and of that peculiar rich ripeness that we get only where the honey is sealed over, say in July, and left in the hive to ripen till September. If I wanted some honey to put on our table I would rather give 10 cents per lb. for some like friend Kramer's than 5 cents for honey that is sometimes shipped in to us by bee-keepers. Now, this idea is an old one, but it is one that should be emphasized again and again. Their honey crop was all sold at 10 cents per lb. I use the expression *their*, for there are three or four brothers who manage the 300-acre farm; and two of them, if not more, turn in and help when the honey season is rushing.

Their honey is engaged in the city of Cleveland, delivered to private customers. Their crop for the past season was about 2500 lbs., both comb and extracted. The comb honey is put six sections in a neat wooden box, with a circular opening in each end to show the quality of the honey. These are sold at an even dollar a box, the sections being so arranged that each package of six sections weighs pretty nearly the same amount. This makes a very neat strong package to handle, and many well-to-do people would prefer to buy it a dollar's worth at a time.

I asked one of the boys if there were any other crop on their farm that paid any better than their bees, considering the amount of time they required. He said he did not know of any thing else that paid as well at the present time. But this industry would not pay without the careful painstaking that is apparent everywhere. These people did not expect me when I came, for the invitation was given over a month ago; but the house where they do their extracting was neat and tidy. You could walk over the floor without making a snapping noise with your shoes because they stuck to the floor. The door to the honey-room was through an outside entry; that is, you open and shut two doors in going in. The entry was perfectly dark. This made it next to impossible for the bees to get in and get a taste of stolen sweets. The bees are all very finely marked Italians, and there was no robbing or buzzing around anywhere.

They aimed to extract all of the white-clover and basswood honey. If the bees do not fill up on buckwheat sufficient for winter, they are fed in the open air, for there is not a hive of bees kept in any direction within three or four miles of this apiary. This outdoor feeder is simply a large pan used for boiling sap, with corncobs placed all over the surface of the syrup, to keep the bees from drowning. In a little while they can feed enough so that every colony in the 75 has a pretty good stock of syrup for wintering; and the Kramer brothers are satisfied that sugar syrup is better for wintering than late fall honey, or even the honey from their clover and basswood, for that matter, or any other *honey*. You see, they are firmly satisfied that the position your old friend Novice took more than 20 years ago is a sound platform. I suggested that perhaps those combs of sealed honey standing in the honey-house would be cheaper feed for the bees than the syrup—that is, after the sugar syrup was deposited in the combs and capped over. They claim, however, that, even were this true, sugar syrup is a *safer* feed for winter. About ten years ago young Kramer had nearly a hundred colonies. During a disastrous winter he lost all but six, and he pretty *nearly* lost his enthusiasm. Since then he has depended mainly on sugar syrup for wintering-stores, and has pretty well the upper hand of the wintering troubles.

"Oh! look here, Mr. Root; you must not go away without seeing my grapes."

Across the road from their residence is a little piece of ground of between a quarter and half an acre in size. It slopes gently toward the southeast, and at the bottom of the slope is a carp-pond. The grapevines are trained on three wires. The wires are held tight by a roller at one end. A crank can be placed on this roller, the wires be drawn up, and the roller fastened with a set-screw. The Concord grapevines are planted about a rod apart, I should judge; and although I have seen loads of fruit on Concord vines, I think I never saw such great *masses* of fruit as on some of these. Why, the great stout wires were really bending

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down to the ground under the weight, although there was a post say every two rods. Now, this result was on what would be called, ordinarily, poor clay land. The whole secret was in keeping the ground clean. With cultivator and hoe the weeds are kept out so you see nothing but the yellow dirt. I suspect the agency of the heat of the sun in warming up the bare ground has something to do, not only with the immense crop of grapes, but with the remarkable sweetness of the fruit. He said if I wanted to taste some that were real sweet I should come up where the reflection of the sun on the side of the barn had ripened them ahead of the others.

We have so many apples at home that I thought they would have nothing to offer, probably, any better than ours; but my eye caught a glimpse of some small-sized ones streaked with a vivid white and pink. They could not tell me the name of these apples, but asked me to taste them. I at once uttered an exclamation of surprise, it was so tender, crisp, and juicy. I have heard people speak of strawberry apples, but I do not know that I ever saw one. If this were called a strawberry apple, I should think it rightly named, and I want some grafts put into my orchard. How I should enjoy giving a lot of these apples to a group of juveniles to sample!

My visit was rather too late to see the bees on the buckwheat; but friend Kramer will get forty or fifty bushels per acre, I should judge, from some acres of that great field. The bees have not stored a very great quantity this season from buckwheat.

Now a word in regard to poor seasons. In our report in our last issue, the impression was given that in Ohio the season was poor. I tell you, friends, it is not the season nor the locality so much as it is the bee-keeper; and a good many times the apiarist gets lazy and loses his enthusiasm. Why, just look here. Even after some of the veterans here in Medina Co. have abandoned the business and let their apiaries go to ruin, saying it does not pay, there are within ten miles of us half a dozen wide-awake bright young bee-keepers who are making good crops year after year. I believe it will do them good to mention their names: M. C. Kramer, U. Prince, M. C. Chase, Vernon Burt, and others. These men get a paying crop year after year. For them the seasons are all fairly good In my travels the matter is freely discussed, and the question is asked why it is that bees have not stored honey in the last ten years as they used to do some 20 or 25 years ago. Well, I begin to think the bees are just as ready and willing to do their part now as they were when the business of bee-journals was first started. I did not see that report from Wisconsin on page 644 of our last issue until it was in print; and when I did it made my heart bound. Why, there is a report that is almost equal to any thing ever given in any year, and yet we have letters from Wisconsin bee-keepers telling doleful stories of no honey to speak of for the last three or four years. (Come to think of it, I guess letters of this latter class come from certain persons who give that as an excuse for not paying some little accounts which have been standing a long while.) May be I am getting on to somebody's toes just a little. A year ago Dr. Miller might have bristled up and showed fight at what I am saying; but just see what a report he has made during this past season. Now, did the bees wake up, or did Dr. Miller wake up with unusual enthusiasm in the spring of 1896? I never thought of it before; but don't you believe the *beefsteak diet* has something to do with his present honey-crop after all? Well, we can all agree on this at any rate: It behooves the bee-keeper, whether he be old or young, to have his dish right side up, and his faith in a loving Providence bright and clear, whenever the honey *does* come.

There is one thing about wheel-riding, especially in the cool autumn days, that is so remarkable that I want to speak about it again. It is this: A few days ago I wanted to go out to see T. B. Terry dig his potatoes. It was just the nicest kind of weather to dig potatoes, and I was sure he would be at it. But it was not the nicest kind of weather for wheeling. There had been quite a shower the day before; but I concluded the roads would be traveled enough in a couple of hours so they would be very nice, and there would be no dust, you know. As I wanted to get an early start so as to get back the same day, I knew I should have a tough time of it till the farmers got around with their teams so as to smooth down the roughness.

I found things a little worse than I expected. Before 9 o'clock I was tired out, and scarcely ten miles from home. It seemed utterly impossible for me to make the 25 miles that day. The teams had been cutting the roads up when they were soft and mushy; and it seemed for a while as if I could make better progress on foot. Toward noon the roads got better, and I began to get my second wind. Well, about 3 o'clock I was in splendid riding trim, although I had made already about 40 miles; and I could hardly resist the temptation to take another 40 miles on the wheel instead of going to the station to get home on the train. Had it not been that I had promised Mrs. Root not to take any more *long* rides I fear I should not have chosen the latter. One of the bicycle papers suggests that, whenever one can not sleep at night after a long ride, he has ridden too hard or too far. When you have had the proper amount of exercise on the wheel you will sleep nicely—much better than if you had taken no ride at all; but whenever you ride so far that the sleep seems "knocked out" of you, then you have been overdoing, even though you do not feel it. By going home on the train I slept beautifully. Had I pushed on, however, and made 70 or 80 miles in one day, very likely I should have slept at only short intervals through the night. The strange part to me is that, after a wheelman gets into this second wind, he has got past the point, as it would seem, of fatigue; and with even tolerable roads he goes on without realizing he is tired. Why is it that we do not meet this state of affairs in any other kind of exercise? Of course, the outdoor air has something to do with it; but I suspect that filling the lungs to their greatest capacity with oxygen is the prime factor. I remember that, the day I have been speaking of, I could not forget my fatigue or get over it until after climbing several moderate hills in succession. They were just long enough to make me puff pretty well each time as I approached the summit, and I took a rest in going down on the opposite side.

Just before reaching Remson's Corners, in this county, I alighted to walk up a long hill and met my friend Dr. Albertson. I stopped at his well, and while enjoying my drink I think my eye must have glanced over the edge of the dipper, and caught a glimpse of a row of cherry-trees loaded with great luscious-looking yellow and red cherries. I uttered an exclamation of surprise:

"Why, doctor, where in the world did you get a variety of cherries of such size, and ripening right here this first week in September?"

"O Mr. Root! that is just what I wanted to show you. But, bless your heart, they are not cherries but *plums*."

The leaves, the shape of the tree, and every

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thing, made them look exactly like cherries. The shape of the fruit, and the brilliant scarlet also, said that they were cherries; but the owner declared they were *plums*. He says they were propagated from suckers, so they are natural fruit—no grafting nor budding. He says the variety has been called s-l o-w; but he thinks that is not the way it is spelled. He says he thinks the variety has been catalogued, but he has not heard much about them of late. Now, if any of our readers can tell me more about this plum I shall be very greatly obliged. They are very late—coming after all other plums are gone, or pretty much so. We found a few that were prematurely ripe, and the flavor seemed to be almost exactly that of some of the choicest wild plums that are sometimes found in the woods. The doctor is going to bring me some of them when they are fully ripe; and I would give more for a row of these plum-trees than for almost any other plum I ever saw. They may be "slow" in name, but they would not be slow a bit if I had them growing on my place.

As I expected, friend Terry and his son Robert were digging the potatoes. Both Thoroughbreds and Freemans were doing grandly—that is, considering the terrible washouts on the side hill they had experienced. His potatoes this year are on rolling ground. A good deal of the soil was washed away from the potatoes on the hillsides, and quite a good many at the bottom of the hills were covered with mud until they were killed out entirely. In order to get the most potatoes from a small amount of seed from Thoroughbreds, they were planted 40 inches apart each way, so, of course, the yield per *acre* will be much less than the Freemans planted about 30 inches apart, and say 14 inches apart in the row. Notwithstanding the tremendous wetness, he has no rotten potatoes. And this reminds me that, down on our creek bottom, half a dozen varieties of potatoes where they were covered with water have rotted entirely. Before the rains came there were potatoes large enough to make a very fair yield; but when we came to dig them they were rotted and gone, with nothing but the skins to indicate where the potatoes had been. Now, one patch of Thoroughbreds was under water more than any other of the rest, and I had given them up as lost, for the water killed the tops, and I supposed they would not be worth digging. Imagine my surprise when we found the potatoes were all perfect—no rot, not even a bit of scab. This was where we applied the sulphur; but we also applied sulphur to the others that rotted so badly.

Wilbur Fenn's potatoes were late as usual. He has one field of 18 acres that I pronounced the handsomest large field of potatoes I ever saw in my life. They are Sir Williams and Monroe Seedlings. They were all planted in July. There is not a bit of blight, no bugs, nothing to mar the beauty of the foliage. We went over the field, putting in our fingers here and there to see what the prospect was for a crop. I asked him if he had any variety of potatoes that would cook dry and mealy when half grown. You know the catalog men, or a great many of them, claim their new variety is always mealy and dry, even though they are not bigger than hickorynuts. Mr. Fenn replied:

"Cousin Amos, I rather think the Sir Williams will be nice to cook just as they are;" and he pulled out an armful of fine specimens so green that the skins would slip almost if you touched them. He carried them into the house, asking his good wife to prepare them for dinner. In due time his bright little girl that superintended the dropping of that whole 18-acre field announced, "Dinner is ready!" and, as sure as you are alive, there was a heaping bowlful of Sir William potatoes with the skins bursted open almost like pop corn. Wasn't I glad I was off from the beefsteak diet! When I was asked to return thanks, I tell you I felt that I could do it honestly from the bottom of my heart.

Cousin Fenn has a family of three boys and three girls, and all of them know all about raising potatoes. I declare! I had forgotten that the youngest was only nine weeks old, so we shall have to make that exception. But it is to me a beautiful sight to see such a united family as this one. And, by the way, I have before spoken of their girl Ellen, now 12 years old, who rides on the potato-planter and fixes the pieces so there is not any miss in the whole field. After the planting was done, there was once in a while a vacancy, and her father said she must have missed a few hills.

"No, father, I am sure I did not miss. You just dig down and see if you do not find the piece of potato right there in place. It is the fault of the potato and no fault of mine that it did not come up."

Sure enough, they found the piece of potato. Her grandfather, Dennis Fenn, declares he would give her $1.50 a day to ride on the machine, and put the pieces in the cups. He says she is worth more than any hired man they can get.

Now, friends, here is another opening for women to help in the farmwork. Her father fixed a little awning over her seat, so she was not obliged to work in the full blaze of the hot

THE IMPROVED ROBBINS POTATO-PLANTER.

sun. Since we have had so much to say about this new planter I think I will give you a picture of it, showing the cups, etc.

Somehow or other it seems almost impossible for me to take a wheelride twenty miles from home without getting lost. During this last trip I took a back road because it happened to be better; but it took me through a new part of the country. There were no guide-boards, and pretty soon I was at a loss to know which way to turn to strike T. B. Terry's. I took the wrong road, as it transpired, and by and by I was astonished to find myself close to the home of Matthew Crawford. Just as soon as he saw me and my wheel he expressed his pleasure by saying he had something special he wanted me to see. Friend C. has little beds for starting strawberries, and for his potted plants, much like my own, except that they are only 4 feet wide. He started this way, and has therefore got all his beds made this width. Instead of having them in a compact group he has them here and there in different points all around his house. For potted plants waiting for orders he plunges them into beds up to the brim, and then shades them with frames covered with cotton until they get "weaned" after being detached from the mother-plant. Then choice varieties

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are planted out in these same beds, making two rows lengthwise of the bed. These rows are about 2 feet apart, and the plants stand 6 inches apart in the row. By keeping the runners pinched off he gets enormous berries in these rich specially prepared beds.

We soon came to a bed containing about thirty plants. These plants had a little more room, perhaps a foot apart. As soon as I saw them I raised my hands in surprise, for they were the finest-looking, rankest-growing strawberry-plants I ever saw in my life. The runners that were just taking root here and there were almost the size of lead pencils; and the colors of these great runners were almost as brilliant as the colors of a ripening peach.

"Well, I *do* declare! Friend C., is this a new variety that gives this enormous growth, or is it some special treatment?"

"Mr. Root, the wonderful growth you see is due both to the variety and treatment. The plants are the 'Nick Ohmer,' and you have four of them already. The special treatment is this: There is quite a quantity of rich old compost spaded under the surface of the soil; but it is not the compost alone. After preparing the bed I stamped it down as hard as I could tramp the mellow ground; then I afterward pounded it as I would pound the ground around a post, and this is the result."

"Now, old friend, you have missed quite a little speculation. Had you showed me these plants, and told me they were a new variety just out, and were worth $1.00 a piece, I would have taken half a dozen, without a moment's hesitation. As it is, I want to say to you that the sight of this bed has been worth my whole hard ride of 25 miles over the hills this morning."

You see, this is nothing particularly new after all. T. B. Terry and others fine up their wheat ground on the surface until every lump is pulverized—until the ground is like the dust in the road, in fact. After having done this the soil is packed down hard with a heavy land-roller. This is the way they get such enormous crops of wheat. Now, mind you, this can be done only when the soil is very *dry;* and it is especially needed on light sandy soils like friend Crawford's, or any soil where a great amount of stable manure has been applied. As soon as it was explained to me I understood exactly why strawberries do not do well at this time of the year in my plant-beds where the soil is almost half stable manure.

Right beside the strawberry-bed was a tomato-vine climbing a bean-pole—that is, with the help of strings that held it fast to the pole. This tomato-vine was bearing nice fruit from the ground clear up about as high as your head; and when I expressed surprise at such a quantity of nice tomatoes on one vine, my friend replied, "Why, dear me, Mr. Root! we have been picking ripe tomatoes almost every day for weeks past from this very vine."

You know friend C. said some years ago, when I first gave the world the Ignotum that he was going to discard all other tomatoes. I did not see any other plants around. If that one Ignotum tomato climbing the bean-pole supplies his whole family, then I have never given the Ignotum half the credit it deserves. But it is the man *Matthew Crawford*, and not altogether the tomato, any more than it is altogether the Nick Ohmer strawberry that makes such a beautiful plant.

Just at this time somebody said dinner was ready; and the first thing that caught my eye was a heaping dish of good nice-looking potatoes with their jackets bursting open, and their rich contents puffing out, just as I found them at Wilbur Fenn's. Of course, I wanted to know what variety it was. Friend C. informed me that it was the Flagel, originated a few years ago in that locality. The originator, when the potato first came out, valued each tuber at about the price of a horse. Now, *that* is away ahead of the Thoroughbred. I suppose friend C. would let you have quite a good lot of potatoes of that variety, for a *horse* just now.

"Bro. Root, you have come in upon us without notice to-day, and now we have nothing but fresh pork in the way of meat for dinner;" and he looked a little troubled while he waited for my answer.

"Why, bless your heart, friend C., I do eat pork, and potatoes too, as you will find out before I finish my dinner."

Then I had to apologize after awhile for eating dinner long after the rest had finished. I told the boys that, if they had climbed great hills for 25 miles, as I had done that forenoon, they would comprehend the situation. By the way, friend C. is quite fortunate in having a couple of stalwart young men (his own boys) to help him on his strawberry-farm, since he is getting old enough to feel like taking things a little easier.

THE DWARF ROCKY MOUNTAIN CHERRY.

In John Lewis Childs' new fall catalog we find this cherry boomed just the same that he and other catalog men have been booming it. We have not space to give the whole, but we take out the following in regard to the quality:

The fruit when ripe is a jet black, and of a size somewhat larger than the English morello; in flavor superior to any other variety.

Lovett, from whom we obtained the plants, says in his '96 catalog:

In quality and flavor it is akin to the sweet cherries, excellent in flavor, and a pleasant fruit for eating out of hand.

Now, the truth is, this cherry is just about as delicious as a piece of soap, and not a bit more. In fact, it tastes more like soft soap than any thing else I can think of. Perhaps it gets its flavor from the spread-eagle advertisement the catalog men give it. Mr. Childs may say, it is true, that he has never seen a plant growing, and has never tasted the fruit. But I stoutly maintain that no seedsman has any right to use such words of praise year after year without making a trial test of these new fruits on their own grounds. They may say that is too much trouble. If they do, I hope their customers will conclude it is too much trouble to read their catalogs. After they have been swindled as I have, I think they will feel so. I have watched the fruit day after day, and even wrote it up, it looked so handsome with its beautiful load of "cherries." I kept thinking that may be the fruit would get better when it was riper. But the fruit got ripe and rotted on the bushes. But it never was fit for anybody or any thing to eat.

There is another shrub I got at the same time, called the "tree cranberry." It is very pretty when in bloom, and the scarlet berries are quite showy; but woe betide the urchin or anybody else who gets a taste. I have tried it at every stage of ripening, and I find it so bitter and disagreeable that one wants to rinse his mouth with water after having tasted even a

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single berry. It is all well enough to grow these things for ornament; but the catalogs should state distinctly that the fruit is only ornamental, and not fit to be eaten. There is quite a lot of other new small fruits just coming out, mentioned in the new catalogs. Are we to spend two or three years in caring for these until fruiting time, and then find it is only another swindle? Why don't our experiment stations buy these high-priced things first and then speak out without fear or favor? I know we have some seedsmen who refuse to give place to these horticultural wonders until they have *tested* and *tasted* the fruit. If anybody else has a Rocky Mountain cherry or a tree cranberry, and finds it any different from what I have stated, I should be glad to give place to his report.

STRAWBERRIES BY THE BARREL; BEEF DIET IN SUMMER.

Mr. Root:—Have you tried raising strawberries by the barrel? The plan is becoming quite popular around here. Procure a large barrel; bore as many 1½-inch holes, equal d'stances apart, in the staves as you wish to set plants. Out of rough lumber make a box 3 inches square inside, and as long as the barrel is deep. In the sides of this box bore a number of ⅜ or ½ in. holes. Bore a few small holes in the bottom of the barrel, and fill in six or eight inches of rich soil. Place the wooden box on this in the center of the barrel, in an upright position. Set plants in the holes in staves as you fill the barrel with the richest garden soil or compost to be had. Fill the box with water as often as necessary, and the plants will fairly boom. It is some work to fix it up, but it has a few advantages. Strawberries, and fine ones too, can be grown by it where the ground is full of stones, tree roots, weeds, etc.; ease of cutting runners and gathering the fruit. A lazy man might want it hung on pivots; then with a seat the right height he could sit and turn the plants to him to do the work.

To protect the plants in winter, a little rye straw is set up around the barrel, and tied.

I live out in the country, away from butcher-shops; and, wishing to use the "meat diet" during the warm weather, I devised the following: The latter part of last winter I cured and dried a large quantity of lean steak from a young and well-fatted animal. To prepare it for use I took one of my jack-planes and made the bit as sharp as a razor. Then I placed it upside down in my vise and screwed it fast, and set a dish under the bit. By having the bit set properly I can easily shave the dried steak as thin as the paper I am writing on. It is twice as palatable, and just as beneficial, as fresh steak prepared by the Salisbury method, and less trouble. Enough for a whole family can be sliced in a few minutes. This jack-plane, when sharp, is the best cabbage-cutter and cucumber-slicer I ever saw.

Arlington, Pa. W. C. SIMONS.

Strawberries and dried beef seem to be a rather strange combination, friend S.; but that reminds me that, while I am on a pretty clean beef diet, I can eat strawberries and other ripe fruits much better than almost any other sort of vegetables. Nice ripe fruit, taken in moderation, and fresh from the tree or bushes, seems to agree very well with the beef diet. But green corn and beans, cabbage, squash, and suchlike, do not answer so well, at least for me. Your plan of raising strawberries is not altogether new, but you have given us some modification. I think I would mix in quite a lot of old well-rotted manure in filling up that barrel; and it would be an easy matter to apply liquid manure through the tube if desired. Dried beef, sliced very thin, has for years been a wholesome and favorite article of food in our household.

THOROUGHBRED POTATOES.

To-day I dug my Thoroughbred potatoes. From the one pound I got of you last spring I got 63½ pounds. The largest weighed one pound five ounces. The vines were not dead yet. They were planted the last of May I am ashamed to tell the cultivation they got (or lack of it, rather). They received no manure, and were cultivated with a horse but twice, and hoed three times. A. W. PORTER.

Baraboo, Wis., Aug. 29.

Friend P., I would never dig potatoes before they are ripe and the vines thoroughly dry—that is, if I wanted to get the largest possible yield. If you want the potatoes to eat or to sell, that is a different matter; but if you are going to save them for seed next year, by all means let them get thoroughly ripe. T. B. Terry told me at my last visit, where potatoes are to be dug by a potato-digger they should remain in the ground until some time after the vines are dead and dry; otherwise they are more likely to be bruised, and some varieties of potatoes are likely to rot after being bruised or cut. I should think your yield was a big one, especially with the care you gave them.

SWEET CLOVER.

In a recent number of this paper, Mr. J. L. Gandy, of Nebraska, made this remark about sweet clover:

Since it has been demonstrated that sweet clover makes good hay and pasture, many of our farmers, instead of trying to exterminate it, as has hitherto been the custom, are encouraging its growth.

Editor Root offers the following comment upon the above, in GLEANINGS:

This is a good point. Let us keep them circulating. I expect to say, and keep on saying, until I do not have to say it any more, that sweet clover is not a noxious weed, but is one of the best honey-plants in the world; that it yields nectar everywhere, and that its flow is prolonged, not days, but weeks and weeks; that if it grows anywhere it grows in waste places; is easily exterminated; that cattle learn to eat it in preference to many other kinds of green forage, and it makes a fairly good hay. I have said these same things before; but it seems it must be repeated in different ways in order to make people believe it.

This is a subject upon which we are in entire agreement with Mr. Root, for we reside right in the midst of a sweet-clover region. Does it yield honey? Well, we should think so. It yields for a long time, and, to our taste, its honey is the finest of all.—*Editorial in American Bee Journal.*

LOOK OUT FOR HIM!

Mr. Root:—We find in going over the towns of Wilkinsburg and Braddock that there has been a man there selling honey to the people. He represents he is a member of your firm, and tells some people he is a son of A. I. Root. We rather think this party is a fraud. He is misrepresenting us, and we should like to know if he is your agent.

J. A. BUCHANAN & SONS.

Holliday's Cove, W. Va., Sept. 14.

We hardly need say that no member of our firm has ver been out through the country selling honey or any thing else. A. I. Root has only two sons. One of them is editor of this journal, and has his hands full pretty much all the time, day and night. The other one is a schoolboy thirteen years old, who manages to keep about as busy as the older one; but it is not always strictly *business* he is busy about. If the man mentioned above comes your way, just show him this item.

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TOBACCO COLUMN.

GOOD SENSE CROPPING OUT.

We copy the following from the *Bicycle News* of Aug. 28:

It is said that 10,000 packages of cigarettes were distributed among the wheelmen at the Louisville meet. Would it not be well to immediately anticipate the effects that must necessarily ensue, and commence building additions to the public hospitals for the insane?

So far as my experience goes, as a wheelman, it is quite an unusual thing to see a wheelrider smoking either a cigar or cigarette. If he has any ambition to be an expert wheelman he very soon learns that the poisonous things are antagonistic to the development of muscle, to say nothing about developing his mental faculties.

While our church was undergoing repairs we had services in a large public hall. Last Sunday on moving our chairs up in a circle preparatory to our Sunday-school class, I noticed a great filthy spot right near where our class assembles. It looked as if a pailful of filthy slop had been spilled on the floor, and then dried down. One of the boys in my class is assistant janitor of the hall; and when I asked if somebody had spilled some brown paint on the floor he replied, "Why, Mr. Root, that is tobacco-juice. They had a show here the fore part of the week, and some fellows sat here and spit all in one place." The janitor did not get around to slick up the hall until Saturday, and by that time the spittle had dried down on to the boards so they could not very well sweep it off. I sat looking at the spot in wonder. Is it possible that human beings, especially human beings who make any claim to respectability, should be guilty (to say nothing of being *capable*) of exuding such a mass of dirty filth from their *mouths?* I can scarcely imagine any thing more nauseating or disgusting. Another thing is a little singular right here. This hall is often used for religious meetings, for public lectures, and various entertainments; but I do not remember of ever before seeing tobacco-spittle (that is, any considerable amount) on this usually clean and tidy floor. My pupil told me it was done at a "show" Well, our children have criticised me somewhat severely because of my prejudice against shows; and I confess that the word *show* means something to me that is not really elevating or progressive. I used to be very fond of going to shows when I was a boy; and combinations of circumstances have seemed to make it advisable for me to attend shows more or less during the last twenty years; that is, *occasionally* I get into a show, so that I know pretty well what I am talking about.

Now, I should greatly enjoy a show where there are scientific experiments, or even skillful experiments in mechanics, if you choose. I like to see an expert throw balls, spin plates, and perform on a rope, providing the rope is so near the ground the performer does not endanger his life; but the average *show* that aims simply to entertain, without any effort whatever being made to elevate and instruct, is painful to me. Sometimes it gives me pain just to read over the *program*, especially in the line of theatrical shows. No doubt the audience was entertained. Perhaps they had a good laugh. But when I go away from such a place—that is, when there is not a single thought that elevates and ennobles humanity—there is left only a dull unsatisfied feeling that I have learned to dread; and I must confess that I can not enjoy any concert or musical entertainment unless there is something for righteousness, purity, and godliness somewhere. And, somehow or other, the kind of people who attend shows are a pretty good gauge as to its standard of respectability. I do not know any thing about this particular show more than what my pupil told me; but from the fact that there were people in attendance who could spit a gallon of tobacco-juice on the floor during an hour or two, I should say on general principles it was a low-lived affair, and would better have been kept out of the hall. Once more: What must be the effect on the physical health of the person who uses tobacco to this extent, to say nothing of the state of heart from a moral point of view?

Special Notices in the Line of Gardening, etc.

By A. I. Root.

THE ROBBINS POTATO PLANTER.

The potato-planter illustrated on page 690 has, as you will notice, two seats. The upper one is for the driver. The lower one is where my cousin's little girl sat, and her business was to see that there was a piece of potato in each one of the revolving boxes as they came around. If the machine did not put a piece in every box, it was her business to put one in by hand. If a piece is in every one of the revolving boxes as they come around, there will surely be a potato planted wherever there should be a potato-hill; therefore this machine, with somebody to guide and direct it a little, *makes no misses*. If there is a missing hill in the field, you may know it was because the piece of potato did not send up a sprout. The price of the machine is $55; with fertilizer attachment, $65. All correspondence should be addressed to the Bateman Mfg. Co., Grenloch, N. J. The same machine has attachments so it can be made to sow peas, beans, or corn.

THE FREEMAN POTATO.

The following just comes to hand from T. B. Terry:

Friend Root:—The Freemans turned out wonderfully. We had 100 bushels more than we expected, and they are nice too. Take it all in all, the Freeman is a wonderful potato with us. T. B. TERRY.

It is a little singular that Mr. Terry has such success with this potato year after year, and so many complain that it is a poor yielder—potatoes small, etc. On our own grounds, if we planted, say, in April, for an early potato, I am afraid I should have a poor opinion of it; but where planted the last of June, or from that on till the middle of July, we have excellent yields of nice good-sized potatoes. I saw a few hills dug while I was at friend Terry's, and they were surely large enough to please anybody. Please notice we offer Freemans, grown by Terry, lower than ever before, and we have his entire crop of seconds this year, at the low price of only $1.00 a barrel. These seconds are well worth the price for a cooking-potato, especially where you want potatoes to bake; and a baked Freeman is about as rich and toothsome as any dish in the potato line that can be put upon the table.

SEED-POTATOES IN GENERAL, ETC.

At present writing we are sold out of Carman No. 1. We can furnish every thing else in the table, both first and second sizes. Now, if there is any thing particularly you want, you had better order at once before the stock is sold out. By the way, we recently had an application from Cleveland for a carload of potatoes, saying that nice table potatoes were selling at from 35 to 40 cents a bushel. You will see by the list in our last issue that we offer two valuable kinds of potatoes at the low price of only $1.25 a barrel. They are worth almost if not quite this low price for a table potato in the city of Cleveland. We do not know how long these low prices will continue, but we will agree to fill all orders at these figures until our next issue comes out, any way.

THE DAVIS KIDNEY WAX BEAN.

I mentioned last spring that we had finally succeeded in securing a kidney wax bean that is per-

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fectly white. The difficulty with all wax beans heretofore has been that they (the beans themselves) were colored, and many people object to a colored bean for table use. This bean, which is perfectly white, was originated by Eugene Davis, of Grand Rapids, Mich., the man who gave the world (through a little help from your humble servant) the Grand Rapids lettuce, which is now catalogued in almost every seed list. Well, we bought quite a quantity of seed direct from friend Davis himself, and we are now harvesting a nice crop of new beans Below is what Johnson and Stokes said of it in their catalog last spring:

Extensive trials the past two seasons have proven this new bean to be the largest cropper, the handsomest pod, the best shipper and market bean, in cultivation. The plant is vigorous and healthy, of compact, upright growth, carrying its pods on the center and well up from the ground. The pods are very long, oval, clear waxy-white color, and, when of suitable size to use for snaps, entirely stringless, showing no tendency to string until they approach maturity. Practical market-gardeners and canners are delighted with it, because of its hardness, productiveness, and handsome appearance. The large, white, handsome, kidney-shaped dry beans are very attractive.

I do not know what the price will be for 1897, but venture to offer as follows: Packet, 5 cts.; pint, 20; quart, 35; 4 quarts, $1.25; peck, $2.00. If wanted by mail, add 8 cts. per pint for postage. Futhermore, should you make an order, and if it transpires that any reliable seedsman offers them at a lower price, I will refund the difference. In fact, we will do this on all or *nearly* all the seeds we offer for sale.

CONVENTION NOTICES.

THE LINCOLN CONVENTION, OCTOBER 7 AND 8.

We have received the following further notice concerning the next North American meeting, from the Secretary, Dr. A. B. Mason:

STATION B, TOLEDO, O., Aug. 18, 1896.

Mr. Editor:—As you already know, the next meeting of the North American Bee-keepers' Association is to be held in Lincoln, Neb., in one of the University buildings, on the 7th and 8th of next October, commencing at 9 o'clock A. M. of the 7th, and closing with the evening session on the 8th.

The securing of railroad rates, and all arrangements at Lincoln, have been left by the Executive Committee with the Nebraska bee-keepers, and my correspondence has been mostly with Mr. L. D. Stilson, editor of the *Nebraska Bee-keeper*, and Secretary of the Nebraska State Bee-keepers' Association, and through his efforts arrangements have been made by which the railroad rate will be one fare plus $2.00 for the round trip, tickets to be bought on October 6; but I learn that the Lake Shore and Michigan Southern Railroad has not yet entered into the agreement, but probably will do so before the time of meeting.

The way for bee-keepers east of Lincoln to take advantage of the Homeseekers' Excursion rates is to purchase their tickets to a point beyond Lincoln, then stop off at Lincoln for the convention, and afterward go on to the point to which the tickets were purchased, pay the extra $2.00 there, and start on the return trip. But your local railroad agent should be able to give you definite information about this.

In addition to the above it is possible that a rate of a fare and a third on the certificate plan will also be made to accommodate those who can not take advantage of the Homeseekers' Excursion rate. Watch the bee-papers for further announcements as to rates.

The Wabash Railroad will sell tickets on the above date for one fare for the round trip, which, from here, is $21.40. As yet, I have received no information about rates from north, south, or west of Lincoln.

The Nebraska bee-keepers have promised to entertain free all members of the Association who live outside of Nebraska; and any one interested in bee culture can become a member by the payment of one dollar to the Secretary. It seems to me that Nebraska bee-keepers have taken a good-sized contract, and I hope we shall have the largest convention the Association has ever held; but the Nebraska bee-keepers are said to be "hustlers," and there need be no fears about their filling their part of the bill, even if hundreds of bee-keepers "try their mettle."

That all may know something of what to expect, the following program has been provided:

The Past and Future of Bee-keeping. Mrs. J. N. Heater, Columbus, Neb.

Bee-keepers' Exchange. Prof. A. J. Cook, Claremont, Cal.

The Wild Bees of Nebraska. Prof. Lawrence Bruner, Lincoln, Neb.

Improvements in Bee Culture. E. R. Root, Medina, Ohio.

Some of the Conditions of Nebraska. L. D. Stilson, York, Neb.

The Union and Amalgamation. Thomas G. Newman, San Diego, Cal.

Economic Value of Bees and their Products. C. P. Dadant, Hamilton, Ill.

Artificial Heat and Pure Air, properly applied in Wintering. R. F. Holtermann, Brantford, Ont.

The Honey-producer and Supply-dealer. Rev. R. T. Abbott, St. Joseph, Mo.

An Original Poem. Hon. Eugene Secor, Forest City, Iowa.

Importance of Water in the Apiary. Hon. E. Whitcomb, Friend, Neb.

Honey Adulteration and Commission Men. Geo. W. York, Chicago, Ill.

Sweet Clover as a Honey-producing Plant. Wm. Stolly, Grand Island, Neb.

What I Don't Know about Bee-keeping.—Dr. C. C. Miller, Marengo, Ill.

How to Secure Comb Honey.—W. Z. Hutchinson, Flint, Mich.

How to Winter Bees Successfully.—Hon. Geo. E. Hilton, Fremont, Mich.

The Production of Extracted Honey—two brief papers, one by N. E. France, of Platteville, Wis., and one by J. C. Balch, of Bronson, Kan.

President A. I. Root will give an address on some subject that will be of interest to all.

It is the present intention to devote the first evening's session to addresses of welcome by Gov. Holcomb, in behalf of the State, and by the Chancellor, Hon. Geo. E. McLean, in behalf of the State University. Responses will be made by Hon. Eugene Secor, of Iowa, and others will be named later. Ex-Gov. Saunders, an old-time bee-keeper, will also address the convention; and at some session Prof. Chas. E. Bessy will tell us something about "Botany as Related to the Honey Flora."

I am informed that there will be from 1500 to 1700 students at the State University, and it is probable, if time will admit, that from 600 to 800 of them will desire so listen to one or more brief addresses on apiarian subjects that will be of interest to them.

It is possible that too many papers and addresses have been provided for; but it is fair to presume that the Nebraska bee-keepers are "hustlers," and we know that those whose names are on the program are also "hustlers," or they would not have been put there, for this is to be a meeting of "hustlers."

Mr. E. Whitcomb, President of the Nebraska State Bee-keepers' Association, writes me that "no pains will be spared to make the meeting the most pleasant ever enjoyed, and Lincoln.....will be yours on that occasion;" and, the editor of the *American Bee Journal* says, "Let's simply astound the Nebraska people with numbers."

It is expected that the Amalgamation Committee will make a report that will be of interest to every bee-keeper on the continent, and it is hoped as many will be present as possible.

A. B. MASON, Sec.

The Southern East Tennessee Bee-keepers' Association will hold its annual meeting at Cookson's Creek, Oct. 10, 1896. Session will open at 9 o'clock A. M. All are invited to attend, especially those engaged in bee culture.

W. J. COPELAND, Sec.

The annual meeting of the Southern Minnesota Bee-keepers' Association will be held at Winona on the 24th and 25th of September next, at 9 o'clock A. M. All who feel in any way interested in bees or honey are very cordially invited to attend.

Winona, Minn., July 27. E. C. CORNWELL, Sec.

The annual meeting of the Southwestern Wisconsin Bee-keepers' Association will be held at Wauseka, Oct. 7 and 8, 1896. All interested in apiculture are invited to attend, especially those who want a foul-brood law to protect their bees from the dreaded disease. Our committee is working hard to get every bee-keeper interested, and we should all feel it is for our own interest to help get a State law to protect our bees. Many prominent bee-keepers of the State have promised to be at our meeting, and no one can afford to miss it.

Boscobel, Wis., Aug. 11. M. M. RICE, Sec'y.

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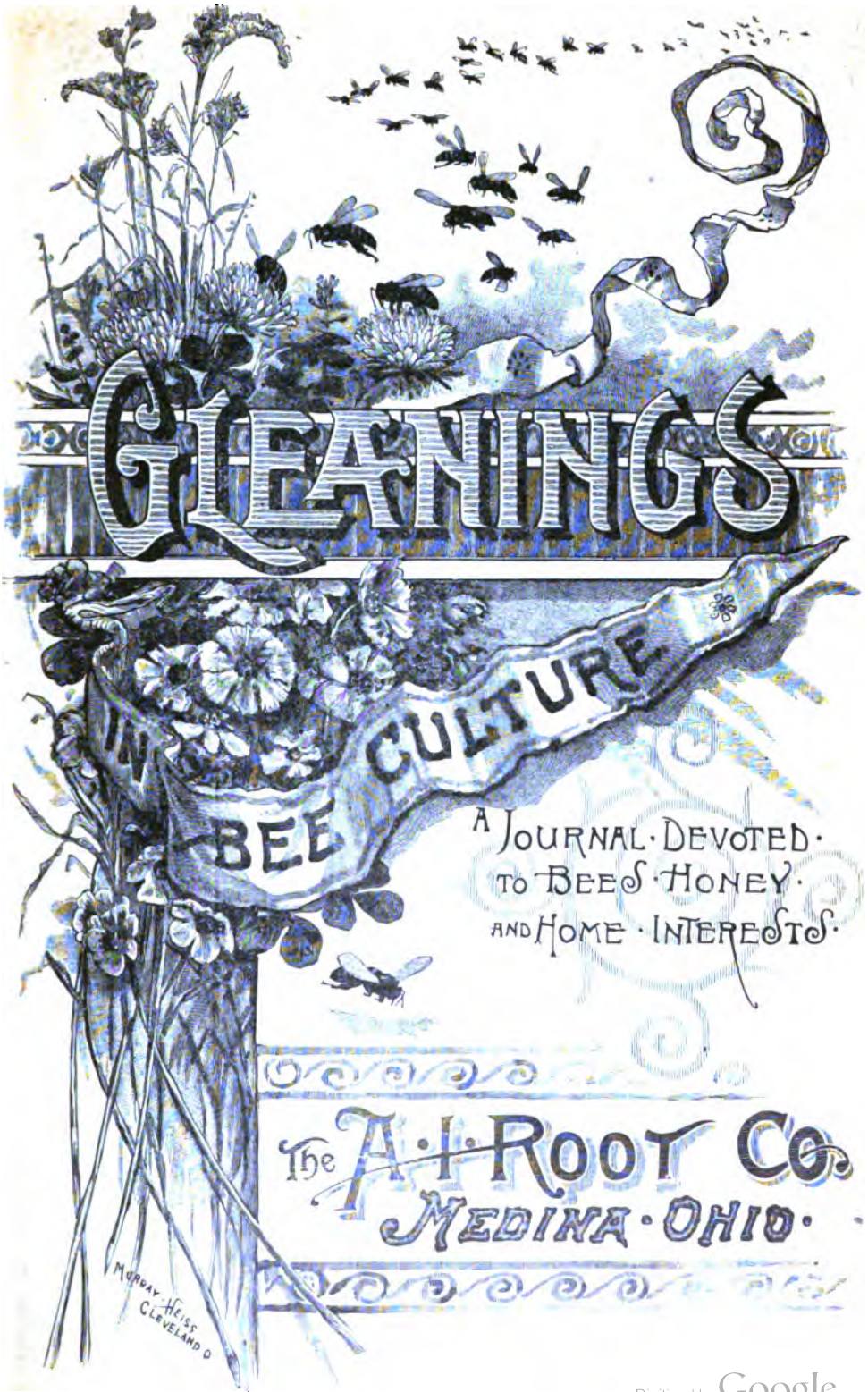

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
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STRAY STRAWS FROM DR. C. C. MILLER.

AN UNFORTUNATE QUARREL is going on at Flint, Mich., Canadian bee-keepers being in the ring. Better part 'em, Bro. Hutchinson.

EXPERIMENTER TAYLOR'S last report shows Given foundation still ahead, but the Weed much ahead of the old kind of milled. [See editorial in another column.—ED.]

"PLEASANT WORDS are as a honeycomb, sweet to the soul and health to the bones."—PROV. 16:24. Pity they're not more generally in use, considering how little they cost.

HOW SEASONS VARY in a short distance! J. L. Anderson, 15 miles from here, has been getting crops during my failures, but this year the season is poor with him and good with me.

IN ANSWER to that question on p. 692, I don't think it would pay at our house to extract and feed. But I suspect that we make very slow work extracting with our old Peabody compared with those who are used to it. Every one to his own trade.

I WONDER WHY friend Greiner doesn't use an excluder in sorting queens out of swarms (p. 674). Put a frame of brood in a hive, an empty hive over it, and an excluder between; then dump the swarm into the upper hive and sift out your queens.

MY EXPERIENCE doesn't tally at all with that of friend Muth, p. 680. After being stung, my horses show an increased fear of bees. Perhaps if stung as badly as his the case would be different, although I had one stung pretty badly. [Your experience is ours.—ED.]

L. A. ASPINWALL gives in *Review* this plan of uniting: Put the two colonies, one queenless, in the same hive, with a partition of double wire cloth between, both entrances facing the same way. In a few days the queenless bees will of their own accord join the others. I know that will work, for a number of mine have united in much the same way without my desiring it. He says bees of a laying queen will kill those of a virgin queen to the last bee.

I DON'T KNOW how "What I don't know about bee-keeping.—Dr. C. C. Miller" got into that program on p. 684, unless the printer's dev—dev—oted assistant has been copying from an old program. That's the essay I read at the North American at Keokuk, and it wouldn't do to read it again at Lincoln.

I DIDN'T BRISTLE UP at what was said on p. 689; but a certain young woman did; and she said, "Just you tell Mr. Root we are always waked up here, and always take care of our bees." As a matter of fact, she was left alone with the bees for more than two weeks at beginning of harvest, and the excellent work she did at that time, together with the good care they had last year, has much to do with the crop of honey they gave.

FRIEND GETAZ is right, I think, in believing that the use of glucose pulls down the price of honey; but I don't quite see that the price of comb honey goes up and down with the price of glucose. Look at the Honey Column. Did best glucose drop 2 cents a pound in Chicago from July 20 to Aug. 20? And has it gone up in Detroit and elsewhere? And is best glucose 5 cents more in Philadelphia than in Denver at the present time? Its control seems to be only one way—always down and never up.

HERE'S THE SENTENCE you couldn't find on p. 632, Mr. Editor: "We separate the section of honey from the wood." Is there any wood in the "section of honey" you separate from the wood? And you forgot to tell us what *you* would say instead of saying, "We ate a section of honey." [Surely there is no wood in the section of honey, in the sense I used it. The meaning of "section" in the sense as there employed, is a portion, or what would be enough to fill a section. When you say, for instance, you threw a pail of water on the fire you mean not the pail but the water. The best answer I

can give you on the use of these terms is that made by A. Norton, in another column.—Ed.]

Hasty says in *Review* that no swarming without drones is probably all in imagination. Worst swarming he ever had was when he tried very hard and persistently to suppress drones in most of his colonies. [The statement that bees will not swarm without drones does not begin to be supported by recent reports; while we may set it down as an almost invariable rule that they will not leave the hive without a queen, the reports seem to indicate that drones have very little influence one way or the other.—Ed.]

I commenced to read to my wife that kink on p. 683 about managing hot wax when spilled. She stopped me short by saying with an emphatic shake of her head, "We're not going to have any spilled wax." I could not deny that her plan was a good one too. [Your wife's determination is quite right. But you know, doctor,

The best laid plans of mice and men
Gang aft agley.

Something may happen some time in all well-regulated homes when the wax *will* get spilled on the floor. It is a good thing to know what to do then.—Ed.]

R. L. Taylor, in his report in *Review*, says if bees have a foundation they prefer, they show that preference plainly only up to a certain point. After the preferred sort reaches that point they hold back and let the poor sort partly catch up. That point is reached in sections measuring 9 to the foot. As that is a trifle less than 1⅜ from center to center, it must be without separators, and that means sections about 1 9/16 wide with separators. *Query.*—Will bees store more honey in a season in sections 1 9/16 wide than in wider ones? [The tendency, I believe, with bee-keepers all over the country is strongly toward narrower sections—not because bees show any particular preference for them, but because the market seems to demand them. In Canada the standard is 1⅝; and our own trade shows that there is more and more demand for the narrower sections.—Ed.]

"A nail-head is objectionable on account of its liability to catch in the wire cloth of the extractor." Thus the editor, p. 667, on wire nails for spacers. But what's that to me? I don't want my brood-frames to go into an extractor, and I protest against being obliged to use what doesn't suit me, just to accommodate manufacturers who want comb honey men to use the same supplies as extracting-men. Still, it wouldn't be a very hard thing to make the extractor fit the nail-heads. [But, doctor, you can not tell positively that you may never want to produce extracted honey. And, again, suppose you are to adopt wire-nail spacers. These spacers might require a special kind of top-bar or frame different from what the great mass of bee-keepers would require. Then you would have to pay an extra price because the stuff would be irregular. It is not a question as to whether a certain frame or hive will accommodate manufacturers, but whether it will accommodate a bee-keeper now producing comb honey exclusively, but who may in the future desire to produce extracted.—Ed.]

If bottom-bars ¾ inch wide will secure combs built clear down every time without having the foundation touch the bottom-bar, or if any other width will do it, then that's the right width for bottom-bars. I've had thousands of bottom-bars 1/16 and ⅛ wider than ¾, and the bees always leave a space over them, and I'm a little afraid ¾ wouldn't do much better. I can get combs built down to the bottom-bars by having foundation touch the bottom-bar, but I'd be glad to be rid of the trouble. [A width of ¾ inch is a compromise between the very narrow and the wide bottom-bar. The objection to a wide one is that, when the hive is tilted bottom up, its condition can not be as readily diagnosed as when narrower bars are used. Very many times I judge of the condition of a colony by tilting it up from its bottom-board and peering under. Then, too, I think the bees do build down better to the narrower bar. The best way I know of to get combs clear down is to key up the Hoffman frames, turn the hive upside down, and leave it that way long enough for the bees to build the combs up to the bottom-bars now on top.—Ed.]

□ "I find that the honey-bee becomes acquainted and familiar with the bee-keeper who walks among the hives," says L. A. Aspinwall in *Review*. I'm not skeptical about that as I used to be. Lately I've been experimenting in comb-building, visiting the hive several times a day. I used the crossest colony in the apiary, Punic half-bloods. Finally I could open up the hive bare-headed, without smoke, after a rain, when bees were doing nothing, and not get a sting. The question remains, Do those bees know me from any one else? [I do not think those bees know Mr. Aspinwall any better than they do any one else; but they become accustomed to the disturbance. We have a path from the factory to our barn, right through the middle of our apiary. This path runs directly in front of and close to quite a number of entrances. The bees of all these colonies have become accustomed to large moving objects passing by, and rarely if ever pay any attention; but colonies remote from this path or any other roadway, I notice, do not take so kindly to a person brushing by the entrance.

I notice when I go a hunting (this is our squirrel season) that the least noise made by the cracking of a twig or the crumpling of the leaves on the part of a human being causes the squirrels to start and seek their hiding-places;

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but whenever horses or cattle pass through the woods they pay no attention. They know the cattle are not after them with a gun, and have become accustomed to seeing them. A year ago or so, when I was in poor health, the doctor said I might eat meadowlarks. I always noticed I could get quite near them along the roadways, especially if driving in a buggy; but whenever I went out into the field with a gun they kept me at a good big respectful distance. I give these instances to show that dumb animals as well as insects will tolerate and allow things they are accustomed to when they will not brook things that are unusual.—ED.]

BEES AND GRAPES.

PUTTING THEM TO THE TEST.

By Chauncey Reynolds.

Aug. 31st a near neighbor came to me and told me my bees were carrying all of his grapes off; so I went over into his grape-arbor, and, sure enough, the bees were there in large numbers. But I told him I was confident that the bees did not at first break the skin of the grape. Of course, I was poohpoohed. He would believe no such thing. I told him he would, upon investigation, find either sparrows, wasps, or something, first punctured the skin of the fruit; then the bees, as would be natural, would gather the juices going to waste. To further illustrate to him that bees would not first break the skin of the grape, I selected a large bunch of them from which there had not been one grape broken off, nor had the skin of any grape been broken. I told him to come with me, as I was going to lay that bunch of grapes directly on top of the frames in a colony of bees, and I would leave them there 48 hours, and then I wanted him to come and see me take the grapes out of the hive. I said I thought he would find the bunch as sound as when put in. Of course, he said I would never find a grape. I did exactly as above stated; but let me first tell you that I did have some misgivings, as nearly every grape on the bunch had in one spot on them a slight scab, looking to me as though at some time the grapes had been stung by something, and had healed over, and I was afraid the bees might work through the old holes in the grapes. But, no! In 48 hours I took the grapes out, when I found not a single grape had been broken. On some of the grapes the bees had put propolis, and some were stuck fast to the frames, so we had quite a little job to get them off; but, as I said, not one single grape was broken in the least. When I first laid the grapes in the hive, there being no sections on the hive, and it being hot weather, there was no cushion on top of the frames; but the bees, when the grapes were first laid on them, crawled all over the grapes, so you would have thought the grapes would have been all consumed in no time. In 20 minutes I glanced into the hive, and there was not a bee on the grapes; and at no time after did I see a bee taking any notice of the grapes at all. I am now still further than ever convinced that bees must have the holes first bored in fruit before they can get any thing to eat.

Fremont, O., Sept. 3.

BEES A BENEFIT TO THE GRAPE-GROWER, AND HOW.

I have over 150 colonies of bees, and raise grapes by the ton, and about all the different kinds. I do not think my bees have ever damaged me a penny so far, and I have kept them 18 years, and have had a bearing vineyard for 6 years, and the bees never work on a grape *unless* it is punctured or has bursted, and then it will begin to ferment inside of 48 hours, if the weather is warm, and is then unfit to eat, for then the juice will begin to run down soon on the other grapes, and smear the bunch all below the bursted or soured grapes; and there is where the bees come in with their help—that is, in cleaning the punctured or bursted berries before they begin to ferment; and instead of their doing harm they are an actual benefit to the grape-grower. To illustrate: Several years ago while at the Columbus, O., fair, Dr. A. B. Mason and I were talking about this very thing, and he gave me an instance that he was personally cognizant of, where a grape-grower complained to a bee-keeper about the damage his bees were doing, and was making a great fuss about it until the man finally moved away with his bees, and then he saw he was mistaken, and he was now positive the bees were worth at least $100 per year to him in getting rid of the bursted and punctured berries on the bunch, and saved his bunches of grapes from having a mussy, smeary appearance where some of the berries had fermented; so I think if any one will thoroughly investigate the matter, the bees will be acquitted so far as damaging grapes is concerned.

BEES AND PEACHES.

When it comes to damaging peaches, I can not yet be so positive, as my several hundred trees have not yet begun to bear; but one of my neighbors is already claiming a damage of $150 to his peach crop by my bees; but as I did not get a dollar's worth of honey this year, the claim is a pretty heavy one to meet under the circumstances. He is very positive the bees did the entire damage, while I maintain that the fruit was certainly imperfect, or in a state of decay; but as to that, I am not positive; but if the bees have actually damaged him to the amount claimed, rather than permit such a condition I shall have to quit the bee-business; for if I move them I shall get near

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some one else who has a peach-orchard, and then it will be the same complaint.

Geo. W. Lawson.

Centreville, O., Sept. 3.

BEES CAN PUNCTURE GRAPES, BUT DON'T.

It seems to me that all there is to the theory is this: There is no bee-keeper of practical experience but knows that bees *can* cut away comb to remove old pollen, miller-moths, etc.; also cut holes through burlap, sheeting, or even enamel cloth, over the top of the hive, and even nibble the edge off a thin strip of wood inserted in the entrance. Well, now, if they do all this (which no one will deny), why can't they puncture the skin of a grape? I for one say they can do it, and, if so inclined, could cut the skin entirely off; but right here is the secret: They naturally lack that inclination, just as much as they naturally lack the inclination to sting when at work in a clover-field or linden forest. If this were not true, what is there to hinder them from puncturing the honey-cells of red-clover blossoms, and even many other honey-secreting flowers, some of which are accessible to nothing but the long bill of the hummingbird? There is no question but that, in *every* instance where bees have worked on grapes, the fruit has burst its skin from some action of the atmosphere, or else the puncturing has been done by yellow-jackets, wasps, or birds; for I am confident that bees would starve before they would think of securing sweets in such a manner. Elias Fox.

Hillsboro, Wis., Sept. 7.

BEES ON GRAPES AND OTHER FRUIT.

I am very sure bees *do not* damage grapes. I have had ¼ acre of the soft Early Turner raspberry, which bees do work on, but not till overripe. They never touch them till too soft to be very useful. I have raised them seven years, so have tested that. I have also two large Blackheart cherries, which are sure to crack after a heavy rain; then the bees are very attentive to the juice, but never do they molest a *sound* cherry! The skin of these is much tenderer and softer than a grape-skin. It's not the nature of bees to eat open such fruits. Honey is what they are for (to suck). I have grapes, but I never saw bees on them unless on some that got torn or mashed somehow. Just so with apples. Who ever saw a bee working on an apple? But they will sip up the juice in a small way. Oh, no! the rain cracked the grapes. It has cracked some of my plums recently. Bees are busy on goldenrod, but they will no doubt be about the plums unless gathered soon. E. P. Churchill.

Hallowell, Me., Sept. 11.

BEES AND GRAPES.

In regard to bees injuring grapes (p. 647) I will ask the question how long grapes will be fit for use after they crack open or burst? I think the very heavy rainfalls caused ours to burst, and they would sour in a few hours; hence I can not see how the bees could have damaged them much. J. T. Van Petten.

Linn, Kan., Sept. 14.

[Friend V., I think you are right. After what appeared in Gleanings, to which you allude, I noticed one Sunday afternoon a few bees buzzing about our Delaware grapes over the porch. The grapes were burst open, and the sweet juice was right in sight. It was not soured at all, for I ate some of the bursted ones, and they were curing something like raisins. I presume the reason why there were no more bees was because they were getting stores somewhere else. Some of the grapes had evidently burst a little before, for they were perfectly dried up. I directed Mrs. Root's attention to the bees, and asked her if she had seen bees on the Delawares before this season. She said she had not, and was sure there was not a bee on them the day before, for she had noticed the grapes particularly. As the matter had been up in the journal I examined the bunches very carefully. A good many grapes that seem sound, when examined closely showed a little depression, say the size of a pinhead. Others had this depression larger, and so on. Now, when the smallest depression was visible, the Italians were able to push their tongues down into it, and get the juice. To a careless observer it would appear that the bees made a hole in a perfectly sound grape. But such was not the case. They could not do it. It may be urged that the bees damage the appearance of the grapes any way. Yes, they do; but the grapes that they injure would have been worthless in 24 hours more, any way. The grapes were fully ripe—dead ripe—and had been so for many days. Had they been gathered and sold, or packed away, there would have been no loss from the bees, nor this peculiar breaking open. Where the vine of some sweet variety of grapes is covered with berries in the condition mentioned, *during a spell of dry weather*, the bees would no doubt cover the bunches in swarms; and as fast as a single berry approached this breaking stage, bees would suck out all the juice; and almost every person who might see it would say the bees destroyed the crop, whereas the bees used only what would have been otherwise worth very little, or good for nothing at all. Now, after many years of observation I am satisfied that bees injure grapes thus far and no more. In California, where they make a practice of curing grapes for raisins, the case may be different.—A. I. R.]

PEDDLING HONEY.

THE ART OF GETTING PEOPLE TO BUY.

By F. A. Snell.

I have found from experience that much more honey, especially extracted, can be sold by going from house to house, and allowing the people to sample the honey, than will be sold when left with the grocers on sale. Getting people to sample the honey goes quite a way in the making of a sale or sales. Even if some desire to buy honey they forget it when in town trading, and so perhaps go without it for some time. When I desire to peddle honey I put a little comb honey up in crates holding four,

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eight, or twelve boxes each. The extracted I now put up in 10-lb. cans, mostly; but a few five-pounds are put in so that, if a sale of a 10-lb. can can not be made, the 5-lb. can may be just what is wanted by a customer.

A quantity of honey in the different packages is loaded into my buggy, and the start is made. I meet Mr. A., who lives about three miles from my home. I stop, take a can of honey, and loosen the screw-cap, and he samples it. I tell him I am out selling, and ask him if he doesn't want a can. The can is bought and paid for, and we drive on.

I stop at the next house, take in a can, and inquire if they are not ready for more honey. I am told that they yet have some of my honey on hand. I bid them good-day, and drive to the next place, at which I have sold honey for many years. A sale of one 10-lb. can is made. We chat a little while, and I take my leave.

The next call is made. Mrs. D. does not desire to buy, but desires me to learn of Mr. D. as to the purchase, as he is from home. A few days later I see him, and he takes a can of 10 lbs. I next see Mr. E., have him sample my honey, and he takes a can. I next ask Mr. F. to sample my honey. He does so. I ask if he would not like a can of 10 lbs. He buys, and I deliver the can at his house. After a pleasant good-morning I state that Mr. F. bought a can of honey of me which I deliver. Mrs. F. is surprised, and says that she doesn't care much for honey, and her husband would have it to eat, and states they had some comb honey on hand, but did not eat any of it, and she had thrown it out. Some ten days later I saw Mr. F., and asked how the honey was going, and I stated what his wife had said. He laughed and said that she seemed to manage her share all right at least. He engaged the second can, to be brought later. In due time it was delivered. Mrs. F. said that she liked that honey well, and thought it very nice, and made no protest this time. The honey, I will say, was well ripened and very thick.

There is very much in properly caring for honey after its removal from the hives.

I next see Mr. G.; get him to sample my honey, and I sell him a 10-lb. can.

Mr. H. is next seen. My honey is sampled, but he would wish only 5 lbs., and I sell him a 5-lb. can.

I next call at the home of Mr. I. Mrs. I. samples the honey, and is pleased with it; inquires if I have 5-lb. cans, stating that she would not care to buy so much as 10 lbs. I inform her that I have a few of the 5-lb. cans, and will get one from the buggy. I do so, and receive pay for it. The price is 10 cts. per lb. for all extracted honey retailed.

Then two or three calls are made and no sales effected. The next sale made is of comb honey, that being preferred. I make the effort to sell 10 lbs. at each sale, hence take the cans of that size when making my calls. Having the smaller cans, and some comb honey, I am prepared to suit the wish of all as to quantity. Very seldom do any wish less than 5 lbs.; but if any will not use that amount I sell them 2½ or 3 lbs. A honey-leaflet is left with any new customers, which is helpful.

Milledgeville, Ill.

THE PRESENT STATUS OF BEE-KEEPING IN CUBA.

A FEW INTERESTING STATISTICS REGARDING ITS RESOURCES; THE EFFECT OF THE WAR AND THE FUTURE OF THE CUBAN INDUSTRY.

By F. O. Somerford.

Not seeing any thing in GLEANINGS from Cuba for a very long time, I've concluded to take upon myself the task of breaking the silence. The war here has become so penetrating that the bee business, together with all others, is feeling the effect; and I might say the honey industry is almost extinguished. Only the bee-keepers near Havana can boast of tranquility, and even here we come in contact with the contending parties much oftener than we desire to; while in the interior all of the apiaries have been abandoned—in some instances being destroyed, in others still remaining intact; but as all in those districts have been compelled to move into the cities, by orders from the Captain General, it is dangerous to be caught in such places. Even we who live near Havana can remain at our posts only by securing passes every eight days. In the province of Havana there are still 12 movable-comb apiaries, containing in the neighborhood of 2000 colonies. Three of these belong to Dr. James Warner; two to Dussaq & Co. (Frenchmen), and the remainder to Cubans—or native residents. The annual product from these apiaries amounts to from 50 to 100 tons of extracted honey, with only a few pounds of section honey.

During the last four years, six apiaries, containing about 1200 colonies, have been destroyed by foul brood—two of these belonging to my brother, W. W. Somerford; one to Dr. James Warner, one to Mr. F. H. de Beche, the French consul of Haiti; the other two belonged to natives. As no foul brood now exists in the vicinity of Havana, we all hope it has gone to stay.

In the province of Santa Clara, near Cienfuegos, there is an apiary (movable comb) containing 1200 hives belonging to Dr. Vietta. As it is some way from the city, I've been told that it has been abandoned for several months. owing to the insurrection.

In the east end of the island, at Santiago de Cuba, are several more apiaries, the largest belonging to Dr. Guimara. All of the movable-

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comb apiaries on the island have been introduced, directly or indirectly, by Americans. Besides the movable-comb apiaries in Cuba, there are box-hive ranches scattered all over the island, some of them containing as many as 1000 hives. This, though, is the exception instead of the general average, as that runs more approximately between 25 and 125 colonies. These box-hive apiaries yield upon an average about 25 lbs. per colony. The wax product frequently exceeds that of honey in money value.

BRITISH CONSUL GENERAL'S REPORT.

This "Report" for 1892 (which was a good honey year) places the exported honey for that year at 259 hogsheads (each holding about 100 gallons net), valued at about $90,360. France bought 1146 hogsheads; Germany, 653; the United States, 254. The remainder found purchasers in Holland, Belgium, Spain, and the Canary Islands. According to the above it can readily be seen that France buys more than half of the Cuban honey. Since 1892 France has become a still heavier purchaser. The wax product the same year amounted to 13,057 arrobas (25 lbs. per arroba), valued at $97,927.50, or more than $7000 greater than the value of honey produced, Spain and the Canary Islands being by far the largest purchasers, as they bought 8967 arrobas; the United States was next in the list of purchasers, taking 2486 arrobas; France bought 1492 arrobas. The remaining 112 found purchasers in Puerto Rico and Central America.

FLORAL VEGETATION.

On leaving Havana in the winter months (from Nov. 15 to Feb. 15), and taking a route for the country, one is astonished at the thousands of little bell-like flowers growing upon the hedges and highways. The number of these flowers increases as one gets further away from close cultivation of the soil. It does not take a close observer, either, to tell that bees are just roaring on these little white morning-glory-like blossoms. These blossoms are the bee-keepers' bonanza in Cuba. Without them bee-keeping here would soon vanish into the distance. Nature, though, has been kind to the honey industry here so far. Everywhere one goes he finds an unoccupied location for an apiary; that is, ample pasturage for one during the dearth season (from April to November). The royal-palm blossom is the bee-keeper's greatest friend, especially in the province of Havana. Down west of here in the province of Pinar del Rio, there are many flowers during the summer months. There the bee-keeper has the advantages of two honey-flows during a year; but as there are poor shipping facilities, the bees are generally managed so as to secure as much wax as possible, thus avoiding the necessity of such expensive hauling.

Going east as far as the province of Santiago de Cuba one finds another change in the floral family. Here the campanilla (bell-flower) vanishes entirely, and its place is supplied by several large and valuable trees (for timber), which yield honey. Among the best honey-producers one finds the Veria, the quebra-hacha (ax-breaker), so named for its hardness, and the yaguey, all of these blooming in the summer months, the honey season there being from August until December. However, from what information I have at hand I am of the opinion that the provinces of Puerto Principe, Santa Clara, and Pinar del Rio are far superior to this province (Havana) and Matanzas for the production of honey.

THE FUTURE OF THE CUBAN HONEY INDUSTRY.

If this war closes (and we all believe it will some day), and a radical change is made in the administration of the government, the honey industry in Cuba will doubtless receive an impetus that will make the business better known and appreciated. As it is, the taxes paid in Cuba amount to over $16.00 per capita, while in the United States we pay only a little over $6.00. But what is dreaded most here is, that, when this war is ended, there will be nothing left but ash-heaps, and the soil of what was once beautiful and inviting.

Punta Brava de Guatao, Cuba, Aug. 1.

THE GABUS AND OTHER CLOSED-END-FRAME HIVES.

REVERSIBLE FRAMES; HOW TO WINTER NUCLEI, ETC.

Dr. C. C. Miller:—Referring to the Gabus hive, as illustrated in GLEANINGS for March 1st, 1896, it seems to me to have many features to recommend it:

1. Its cheapness, the closed-end standing frames constituting two of the sides of the hive.
2. Its adaptability to expansion and contraction.
3. The frames are reversible.

1. Would you please comment on this hive, and state what the result would be of reversing the end comb when full of honey, and placing it in the center of the brood-nest during a moderate honey-flow? Would the honey be carried above and placed in the super?

2. What plan would you recommend for the preservation of two nuclei of, say, four Langstroth frames each, during the winter, it being desired to keep the queens in readiness to replace any that are lost in early spring?

3. Do you think well of the scheme of breeding up in 10 frames and contracting to 8 when the super is put on? Will it not induce swarming?

4. Is it not a good idea to make the foundation for sections drone-cell size?

5. Has the patent on the Heddon hive expired?

6. Please give us your experience with the

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8-frame Dovetailed, using two bodies or 16 frames.

7. You will notice in the illustration of the Gabus hive that the frames are parallel with the front instead of, as is usual, at right angles with the front. Is this any disadvantage? and if so, why?

Ben Avon, Pa., Aug. 19. H. P. JOSLIN.

I can hardly add much to the comments made by the editor on the Gabus hive. Mr. Gabus has strongly set forth its advantages, and if, as he says, "It has all the advantages of both the box hive and the movable-frame hive," then certainly it is the hive for all to adopt. Yet the fact remains that it has not been adopted by all, nor even by a majority of bee-keepers, for practically the same hive has been before the public for many years. The main point of difference between this hive and its predecessors is, that in this hive the bolt goes through the $\frac{5}{16}$ holes in the end-bars. A variation of more than $\frac{1}{16}$ of an inch makes it impossible for the ¼-inch bolt to enter. It requires nicer workmanship than I have generally seen in bee-hives to have no variations of $\frac{1}{16}$ of an inch. Supposing, however, all goes together snugly when new and empty, there is some liability to change through the course of time; and with a cross lot of bees boiling out at the open joints it might take more time and care than desirable to get the bolt through.

Considering the lifetime of a bee-hive, the difference in expense is not a very great matter; and while one with long experience may handle the frames of such hives readily, others will find it much easier to have hanging frames with some sort of automatic spacing by which every frame will easily take its proper place.

I don't know just how much value is nowadays attached to this matter of reversing the frames; but there seems to be little said about it, and I suspect that some who formerly practiced it have given it up. The claim that, by reversing, swarming could be prevented, seems to have no solid foundation; but it seems to me that reversing has value for the sake of getting combs built solidly to both top and bottom bars. There may be a question, however, whether it is a desirable thing to break up the housekeeping arrangements of the bees by turning their rooms upside down. I know there were reversible frames in use at Medina, and perhaps the editor will kindly tell us whether they are now used more or less than formerly.

If the end comb were filled with sealed honey, and placed in the center of the brood-nest, I think reversing would not make the slightest difference. If the comb were partly filled or partly sealed, then reversing might make a difference. Whether partly or wholly filled, if such frame were put in the center the honey would sometimes be carried up into the supers and sometimes not—oftener not, in my own experience. One year, during the honey harvest, I put empty combs into the center of many hives, and almost invariably these combs were filled solid with honey. Of course, in that case full combs would hardly have been emptied.

There seems to be a good deal of difference in colonies as to the amount of brood, and consequently the amount of honey left in the brood-nest; and I am inclined to the opinion that, in the long run, it makes no difference as to the placing of the combs. If they empty out a comb that you put in the center, they'll fill up others at the sides, so that in the end you'll be just where you started. It is possible, however, that uncapping filled combs in the brood-nest may make a real difference. No matter where such combs are placed, the bees are likely to empty them; and if there's no room for the honey in the other brood-combs it must go into the super.

2. The best plan I know of is to put the two nuclei side by side in the same hive, with an impassable division-board between them, the two entrances at the front being six to twelve inches apart. I speak confidently of this plan after much experience. The nuclei were always found in winter close up against the division-board, the whole forming a globe just as if they had been one colony, and I think they wintered just as well as if they had been fully united.

3. There seems no doubt that lack of room helps to induce swarming, and reducing the room is probably worse than to start in the first place with limited room. If I started the season with a ten-frame hive, I think I would keep the ten frames all through. If I used an eight-frame hive, I think I would start with from 12 to 16 frames, and reduce to 8 on giving super .

4. I think not. Worker-comb makes a better-looking surface when sealed. If the queen can get into the super, she is more likely to go up and lay in drone than worker comb, always providing drone comb is scarce in the brood-nest. If excluders are used, of course she can't go up; but in that case it might delay the sealing of some of the sections, for I've seen cases in which a section was entirely sealed except a little corner of drone comb, the cells being entirely drawn out, but without a drop of honey, the bees evidently holding them open for the use of the queen.

5. I think not.

6. Couldn't. It would fill a whole number of GLEANINGS. I may give briefly, however, the result so far as I have got. Somewhat contrary to my expectations, I have not made a success of running two stories throughout the season for comb honey. I stuck to it faithfully throughout most of the season, with some twenty colonies, against the earnest pleadings of my assistant. But I've had good success by giv-

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ing each colony a second story at the beginning of the year, reducing to one story at harvest, then at the close of harvest giving a second story till time to take in cellar.

7. The parallel, or "warm" system, as it is called, has not found great favor among bee-keepers in this country, although much used across the ocean. The chief objection made is that it does not allow so free ventilation and so free entrance to any one of the frames. Perhaps there isn't any very great difference in the two systems. C. C. Miller.

Marengo, Ill.

[I know of no real decided advantage in reversing, except getting combs built down to bottom-bars as the doctor states. It was once claimed that it would prevent swarming, and kill queen-cells; but it does neither. Sometimes reversing at the right time will throw the honey from the brood-nest to the supers.—Ed.]

HONEY-PLANTS OF FLORIDA.

ALSO SOMETHING ABOUT POISONOUS HONEY.

By A. P. W.

During the past four years I have been paying attention to trees, shrubs, and plants which afford pasturage for bees; and last fall, for the first time, I found them busily at work every day upon goldenrod, which is so very abundant. They also worked very industriously upon the wild portulaca which grows in Florida, and is, I think, common in most of the Southern States. This plant has stem and foliage like that of the cultivated portulaca (grandiflora), and has a purplish-pink blossom, which in shape is like that of the single flower of the cultivated kind, but much smaller.

Then, too, the common, much-despised sorrel, called in some States "horse-sorrel," is a plant upon which bees work in such numbers that, in passing by a field where it is plentiful, one can hear their humming very distinctly, though a good distance away.

Among cultivated plants, cassava should be given a high place in the estimation of bee-keepers. (In this name the emphasis is upon the first syllable.) The plant produces flowers in great profusion, upon which bees cluster, so that, at a distance of sixty feet from a "patch" of it, their humming can be heard so as at first to make the impression that a swarm is coming.

A small-leaved tree, of bush habit, growing from fifteen to twenty feet high, and called myrtle in South Florida, is a hardy evergreen which grows abundantly on the edge of wet places. The profuse bloom is an insignificant little thing in appearance, but it is covered by bees on sunny mornings. The bloom comes in February, hence its importance is evident.

Antigonon leptopus (Rocky Mountain rose) is another plant which attracts bees in crowds. It is a nearly hardy vine, a rapid grower, covering itself with rosy carmine bloom, and should be planted in waste places in Florida, and allowed to run at will.

In February I visited a spot that was literally ablaze with the golden color of the bloom of the lovely yellow jessamine (gelsemium). There were bees in abundance; but whether they were getting honey or pollen I could not tell, because the flowers were all a little too high.

I thought of the poisonous honey we hear of sometimes, and recalled a remark I heard made by a thoroughly educated and experienced physician of North Carolina. Said he, "I have made a study of the poisonous-honey question, and have long been convinced that there is no such thing as poisonous honey. It is true," said he, "there have been many instances where persons became ill after eating honey; yet I have never known or heard of a death that could undoubtedly be traced to that cause. And it is also true that there are some with whom honey *invariably* disagrees; and many who, *knowing* that it disagrees with them, forego its use entirely, or eat of it sparingly, just as they should of that, or any thing else, which they find unsuited to their digestion."

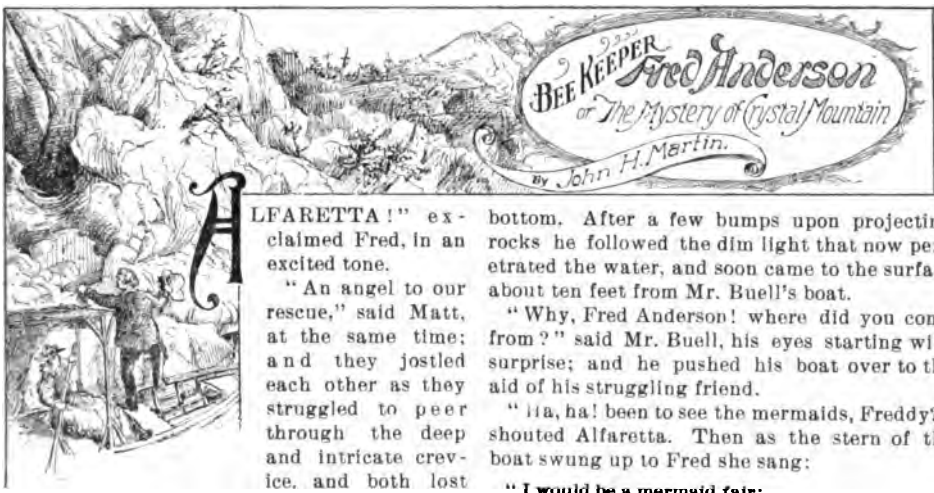
In some cases eggs, no matter how prepared, will bring on bilious colic; and in others onion sauce produces a similar effect; and I once knew an illness of several weeks following an attack of colic produced by eating onion sauce, and very little of it.

So in view of these facts and of the great quantities of honey consumed every year, in which there must be more or less jessamine honey, if it is a honey-plant, does it not seem probable that the physician's conclusions are correct, and that there is no universally poisonous honey any more than there are universally poisonous eggs or onions?

Orlando, Fla.

[The physician's remarks in regard to poisonous honey are doubtless generally true. Notwithstanding, I think honey is sometimes gathered (especially wild honey) that would make all or nearly all who eat it sick—see the incident mentioned in the A B C book. It is not certain, however, that this honey comes from laurel. My impression is, that the laurel might, in certain localities, or perhaps in certain seasons, produce a honey that would make all or nearly all who eat it sick. There are plants like the poison ivy that poison the majority of people who touch them. If the poison ivy should produce honey, and this honey were eaten as food, it would be quite likely to produce some effect. My impression is, however, that there is very much honey called poisonous by mistake, and the doctor has the right of it in the majority of cases.—A. I. R.]

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.



"ALFARETTA!" exclaimed Fred, in an excited tone.

"An angel to our rescue," said Matt, at the same time; and they jostled each other as they struggled to peer through the deep and intricate crevice, and both lost their hold upon the slippery chalk, and were nearly submerged again.

"Fred Anderson, where are you?" shouted a strong voice beyond.

"Mr. Buell," said Fred and Matt joyfully.

Fred shouted through the crevice, "Mr. Buell, we are jugged in here, and are unable to get out; but hold your boat outside a few minutes and I will tell you what to do. Now Matt," said Fred, with an air of business, "I have an impression that there is a larger opening out to the river a few feet below us. The water is so turbid we can see scarcely a foot into it; but I think I shall chance a dive to find out."

"Misther Fred, I don't wish to interfere with yer plans; but it may be a parilous undertaking; there's false pockets and channels, as you know, and a chance fur yees to get into one and niver come out. Now, Fred, it's mesilf that's a poor plain Irishman, and not of so much use to the world as yees are; let me do the diving; and if it comes to the worst, me body'd betther be food fur fishes than yer own good silf."

"My dear generous Matt," replied Fred, with much feeling, "this is my plan, and I am the one to carry it out; besides," said he, with a touch of bitterness, "it is better, perhaps, to become food for fishes than to love—" Here he paused; "but, Matt," said he, resuming, "there's one bright ray of hope. If I cross to the other shore, and in the sweet by and by meet her we'll never part, for there's joy and no lunatics in heaven." With these words Fred dove quickly under the water.

"God bless him," said Matt; "and may the saints speed his parilous journey to a successful ending."

Fred felt his way rapidly down the fissure; and, as he expected, it opened out wider at the bottom. After a few bumps upon projecting rocks he followed the dim light that now penetrated the water, and soon came to the surface about ten feet from Mr. Buell's boat.

"Why, Fred Anderson! where did you come from?" said Mr. Buell, his eyes starting with surprise; and he pushed his boat over to the aid of his struggling friend.

"Ha, ha! been to see the mermaids, Freddy?" shouted Alfaretta. Then as the stern of the boat swung up to Fred she sang:

"I would be a mermaid fair;
With a comb of pearl I would comb my hair;
And still as I combed I would sing and say,
'Who is it loves me? who is it loves me?'"

At any other time Fred would have shown embarrassment under this query; but just now he was struggling to regain his breath and expel water from his breathing-passages. As soon as he had regained the command of his voice he told Mr. Buell to shout into the fissure to Matt Hogan. Matt had been anxiously waiting, and the moments seemed long drawn out. When he heard the call he gave a joyful shout, and in a few moments he too had performed the diving act and was struggling for breath a few feet from the boat. Taking them in tow Mr. Buell rowed them ashore. They were much exhausted upon reaching solid ground; but as soon as Fred could do so he said, "Mr. Buell, how did you know we were in that pool?"

"We were rowing up the river toward the Ghering landing," answered Mr. Buell, "and saw you at work on the chalk butte, and then saw you both suddenly disappear with your arms in the air, and a cloud of dust puffing up. Alfaretta gave a cry of alarm. I knew your shelf of chalk had given way, and that you were somewhere below. I rowed as fast as possible to your rescue, but I was delayed several minutes by the bee defenders of the cliff. I had to arrange to the boat-awning the mosquito-netting which you know we always carry as a safeguard against river insects; and not till we were well protected could we make further approach. I came up to see you transfer the bees, and tell you about the meeting at the Dawson ranch; but I think you will not feel much like work or conversation until you change your clothing and have a good rest; so I will go home and come up again to-morrow."

"Mr. Buell, I can not express in words my gratitude to you for your timely aid."

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"An' it's mesilf too, Mr. Buell, that will keep yer mimory as graan as the shamrock of ould Ireland."

"Thank you, friends," answered Mr. Buell; "it has given me great pleasure to aid you, and to be so providentially on hand.

'Behind the dim unknown
Standeth God, within the shadow, keeping
watch above his own.'

"Now, friends, *adios* until to-morrow."

"A very foine man that," said Matt, as the boat receded, "and a foine sprig of a leddy; too bad intirely she's so mintally unbalanced."

Fred had the same thoughts, but with feelings that were stirred to their profoundest depths. Turning to Matt as they walked, Fred pointed to the receding boat and said, "Matt, how would you feel if your Biddy Malooney were mentally unbalanced like that young lady?"

"Fur the love of Heaven, don't mintion it," cried Matt; and with an expression of agony in his face he said, "Sure, Misther Fred, I'an know I'd be a lunatic mesilf."

It was well toward evening before Fred felt like doing more work; and then he put in his time languidly picking up the odds and ends of boards and frames that will accumulate even in a small apiary.

A night's rest gave Fred the necessary renewal of spirits for the next day's work, and the first steps were to the bee-cave.

The mattock was luckily sticking in the chalk where he had left it when he turned to laugh at Matt's antics. The hats and attached veils were floating in the dark pool twenty feet below; and to get them, Fred thought of Matt's fishing-tackle, and immediately started for the ranch for those necessary implements.

Matt was eating his mush.

"Good-morning, comrade," said Fred.

"The same to yersilf, Misther Fred."

"Well. Matt, did you wake up this morning thoroughly disgusted with the bee-business?"

"Faith, an' I did not; nayther did I go to bed disgusted; but I tell yees I am disgusted wid the ridiculous jumping-jack I made of mesilf, an' all because a baa was making a proclamation on me backbone."

"And, Fred," said Mr. Ghering, with a twinkle in his eye, "do you know Matt vas disgusted too wid your politics? He say you try to make von Prohibitionist of him; but you give too much dose—too much water at von grand splash."

"That is too bad. While I should like to see him a good Prohibitionist, I did not mean to drown him; and to prove it to you I wish to get a strong rope to hang into that pool; then if we fall in again we shall have a way of escape. And, Matt, I want your fishing-tackle with which to fish out our hats and veils."

Having obtained the articles needed, and submitted pleasantly to further chaffing from the men, he returned to the butte. Hats and veils were fished out with the hook and line, and the rope hung into the well, with the upper end thoroughly secured. Before the bees were stirring, a new path a little deeper into the chalk had been cut, and transferring operations could be resumed. It was a busy day on the ranch, and Matt could spend no time as a helper and learner, and Fred went forward as rapidly as possible alone with his work.

Having in mind his previous day's experience, Fred approached the next chalk-hive pocket with some trepidation; but having in mind his rope way of escape his confidence returned, and three transfers were successfully made during the forenoon.

Fred's late and hasty lunch was slightly interrupted by the arrival of Mr. Buell, veiled, gloved, and with a pair of old stockings drawn

ON SHORE AGAIN.

over his shoes, and tied securely around the ankles.

Fred laughed when Mr. Buell approached.

"I see," said he, "that you have profited by Matt's experience, and mean to leave no place for the entrance of bees."

"Forewarned is forearmed," said Mr. Buell; "and, Fred, I have found bees in one of the old sycamores near my place; and if I can learn how to transfer I will try them for an experiment."

"It is very easy after getting confidence," replied Fred; "but, like every thing else, you must have practice; and, as Matt expresses it, your knee-caps will rattle a little at first."

When they approached the cliff Mr. Buell remarked that he would prefer to take his first lesson where there was less danger from drowning.

"No danger now," said Fred, and he pointed

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to his rope way of escape; but Mr. Buell approached gingerly, and could hardly be induced to approach the deep and forbidding pool near enough to peer into it. After cautiously doing so he retired to a safe distance. He shudderingly remarked, "I should think you were jugged yesterday. Indeed, it was a providence that sent me to your rescue."

Mr. Buell secured a safe place from which he could closely watch the transferring process. He was not only an observing man, but quite a genius; and after a few moments' observation, and noticing the shape of that individual pocket, he had an idea, and tried to impart it to Fred; but the head of the latter was in such a roaring vortex of bees that not a word could he hear, and Mr. Buell wisely concluded to wait his talking until he was in a more quiet place. The transfer was successful, and, after placing the hive in the apiary, a little rest was taken under the sycamores.

Here Mr. Buell made haste to impart his new idea.

"Fred," said he, "why don't you cut clear around one of those chalk pockets and take it up bodily? That would save transferring, and then you would have the bees in beautiful chalk hives—a clear saving in lumber, paint, and no end of trouble."

"But," said Fred, "those pockets are not all of the same size and shape; and, furthermore, they would have to be transferred in order to get them into these frames; and our new system of management could not be performed without them."

Mr. Buell did not like to give up his idea, and said, "Well, if you wish to use frames why not clean the chalk and make your hives the same as wooden hives? I believe the plan will work."

"All right," replied Fred; "I should like to see you make a durable chalk hive; and when you succeed I will be the first one to use it."

"I see you are skeptical about the success of my chalk hive. I shall have to convince you by making one; but I have another idea. Why not use chloroform to subdue the bees while transferring? You can stupefy them to unconsciousness, and then there would be no fear from stings. Why! I believe a bottle of chloroform properly applied would stupefy all of the bees in the cave."

"In the absence of the drug," said Fred, "I prefer to practice the good old way. Mr. Buell, you are directly on the beaten path of all beginners in bee culture. You wish to get up new inventions before testing thoroughly the ones we have."

Again Fred led the way to the chalk cliff for another transfer. Mr. Buell advanced a little further this time, and was of some material aid. A very good day's work was accomplished, and Mr. Buell was so well protected that he received but one sting, and this one upon the knee, where the pants were drawn tight; but he did not complain over this trifle; and after four o'clock, when the work was completed for the day, and seated upon a box by that strong work-bench, he unfolded his plan for a meeting at Dawson's.

"There were forty persons in attendance at Dawson's funeral," said Mr. Buell; "and after the obsequies I quietly canvassed the opinions of those present, and found them quite agreeable to a meeting next Sunday. Several were quite enthusiastic at the idea of starting a Sunday-school. They had been debarred from such privileges for several years. As one woman quaintly put it, 'I hain't been nowhere on Sunday in five year; it's drudge, drudge, from one end of the year to the other; and I feel as if relapsin' into heathenism.' Even those who do not accept Christianity are anxious for the agreeable change a Sunday-school and religious services will bring. I look upon this opportunity as one of far-reaching interest to not a few children in that neighborhood. There is hope for even the Dawson children, ragged and unkempt as they are. I shall want you to play the guitar and lead in the singing. It will be a great help to the cause; and, Fred, can you not induce Mr. Ghering and the men here to attend?"

"I recognize all you say about the work to be done," said Fred, "and will do all I can to aid you. I think some if not all of the men will attend from this ranch."

Then Mr. Buell and Fred parted for the day, with schemes of a high and unselfish order uppermost in their minds.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE, BORODINO, N.Y.

UNITING NUCLEI AND AFTER-SWARMS.

Question.—Having some nuclei and light after-swarms that do not have sufficient bees to winter as they are, I desire to know what is the best way for doubling up, or uniting, two or more nuclei or after-swarms, in the fall, preparatory to wintering? When is the best time to do it?

Answer.—The time of year to double up weak swarms, or to unite nuclei, is just as soon as the bees cease to gather honey and you have the extra queens disposed of as you wish. The last half of September and the first half of October is the time when I unite the most of my nuclei, or small colonies, if I have such. The sooner it can be done after September 10 to 15 the better, for then the bees are given more time to fix their stores and hive in the shape they wish them for winter; and the nearer these things are to what they would be in a

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full colony which has had all summer to prepare for winter in, the more assurance of successful wintering we have. A hive which has its combs all overhauled after the 15th of October, and put back promiscuously, is in poor shape for winter, as the nest prepared for winter, with unsealed honey surrounding it on all sides, is thrown out of shape and made as uncomfortable to the bees as a bed would be to a man were it thrown over a pile of stones, instead of being smoothly placed over a mattress, and that mattress resting on woven wire springs. No disturbing of the winter-nest of the bees should be done later than October 15th to 20th, unless it is a positive necessity, north of 40° north latitude.

Well, how shall we unite? The old way, and the one adhered to by very many still, is to move the hives gradually together by moving them a few feet each day, or after the bees have had a flight each time, till the nuclei are gotten close side by side, when both colonies are smoked thoroughly, and the bees caused to fill themselves with honey by pounding on the hive, or otherwise roughly using their home. The bees, being filled with honey, are not liable to quarrel, especially if they are mixed by interchanging frames when putting them in the hive in which they are to stay. Put in their permanent home only such frames as contain the most honey, and place the fullest frames near the outside of the hive; and those containing the least, in the center. This leaves them more nearly in the shape a full colony would be in when undisturbed, and causes the bees less work in getting their winter quarters arranged. After having all the combs that the hive will contain, in the same, shake the bees off the remaining frames in front of the hive, shaking frames from alternate hives each time, so as to mix all the bees thoroughly as they run in. If any bees stick to the sides of the hive, brush these out also, that all may go into the hive together.

If you have not disposed of all the queens but one, you should do so before uniting, keeping the one which is the youngest, and therefore liable to be the most prolific, where you can have your choice to do so.

Probably there are more bees united by this plan than by any other known; still, I have always considered it as slow and tedious, not giving any better results than a shorter plan which I have adopted for the past few years, which is as follows: When the time comes to unite I select the hive having the queen I wish to retain, as the one to contain the united colony. I now open this hive and take out what combs I think will be necessary, leaving those containing the most honey, or otherwise, as the circumstances may direct, although it is seldom that united colonies have too much honey, when those which are left, being sure the queen is on one of them, are placed next one side of the hive, as closely together as I wish them to be left for wintering.

The bees which are on the combs to be taken are now shaken off the combs and allowed to run into the hive, when, after closing, it is left as it is, ready to receive whatever is to be united with it.

I next go to the one or more colonies which are to be united with this first one; and if they have a queen she is hunted out and disposed of as I desire, when all of the frames are removed but one, two, or three, in accord with the number of bees there are in this colony; few being so small that only one comb is left, and in no case is a colony weak enough in bees to need uniting, unless they can all crowd on three combs fixed as I am about to tell you.

The combs left are generally those containing the most honey, although some years there is little choice of combs on account of all being liberally supplied with honey. The combs (two or three) are now spread apart from 1 to 1½ inches, and placed in the center of the hive, when the hive is closed and the bees shaken off the combs taken out so that they can run in with those left on the spread-apart combs. I fix any others that are to be united in the same way, in some cases putting as high as four or five in with the one having the queen, but not usually more than one, two, or three, according to the number of bees each contains.

I now wait till some cool, cloudy, raw, windy day, or some morning when there has been a frost, or nearly so, when I am ready for the uniting, which is very simple. The hive having the queen is uncovered; or if the cover is a mat or quilt, this is rolled back till the comb next the vacant side of the hive is exposed, when I go, smoker in hand, to those ready to be united with it, blow a few dense puffs of smoke in at the entrance, quickly uncover the hive, blow in freely of smoke over and around the three spread-apart combs, when I place the first finger of each hand between the first two combs; and if three, the big fingers between the next, when the third and little fingers clasp over on the outside of the outside frame, the thumb tightening on the other side at the same time, when the three frames, bees and all, are lifted out all together and carried to the open hive, having the queen, and all lowered into said hive in a body, the same being placed close up to the side of the exposed comb. The quilt is now rolled over all the frames but the last, when another and another lot is brought in the same way till the required number are in, when the hive is closed and the uniting accomplished.

If the day is cool and raw enough, or the night before has been cold enough, the bees which are to be carried will all be compactly clustered on and between the spread-apart combs; and after you get the "hang" of the

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thing a little you can carry them where you wish, without any flying in the air or being left in the hive. Why only three combs are to be left under any circumstances is that a person can not grasp more than these with the hands; and to separate the clustered bees in any place is to make a bad job in losing bees and have them fly all over you and out into the cold to perish. By removing the hive and stand from the old location no bees are lost by returning, although some will return and hover over the old spot on the first flight for a little time; but you will soon find them with fanning wings at the entrance of their new home, which they accept ever afterward.

Heads of Grain from Different Fields

HOW TO SEND MONEY, ETC.

On page 655, in regard to sending goods when money is lost in the mails, I will ask if, when you send money in a letter without an order or other safe way (if you ever do), do you ever think the party to whom you send it ought to stand any of the loss? For my part, I do not. I very seldom send money without sending in a safe way; and when I do, it should be just the same as any venture—at my own risk; and while it is a kindness on your part to send the goods and bear part of the loss, is it justice to yourselves or to others who pay for a safe way to send money, as profits must cover all losses? Please do not think I want to criticise, but simply to give the other side of the picture.

Linn, Kan., Sept. 14. J. T. VAN PETTEN.

[I thank you for your frank statement of your views as to the money you have lost. Your plan is one I have followed all my life. We send small sums by mail, without any precaution, and all my life I have had more or less losses—perhaps one letter in five or ten thousand. When such loss occurs I send the money again, as a matter of course. If the person to whom it goes is liberal enough to stand part of it, we accept it with thanks. Some of our customers flatly decline to let us share any such losses. Out of courtesy, however, we almost always offer to bear our part, even though we are not to blame. Where a man sends five or ten dollars loose in a letter, however, we really can not undertake to help him out—at least not very much, for he has been foolishly reckless.—A. I. R.]

BANANA OIL OFFENSIVE TO BEES.

On page 570 R. W. Riddle tells of banana oil making bees cross. I have never made banana oil or heard of it before; but about a year ago, on several occasions when I had eaten a banana just before examining my bees, and still had specks of it on my hands, I was always unusually attacked. I also noticed that the smell of a banana, especially if it was getting overripe and soft, was almost exactly like the smell of the poison the bee emits on stinging. I therefore came to the conclusion that the smell infuriated them. Mr. Editor, try it yourself; discard your veil, rub your face and hands well with juicy decaying bananas, and see the result.

Kingston, Jamaica, Aug. 26. MONGOOSE.

QUEEN-CELLS POINTING UPWARD.

Mr. Root:—We have six colonies of bees, and they all build their queen-cells on the upper part of the combs. They are a little larger than a worker-cell, and about twice as long, point upward. I do not see an answer to this question in your A B C. It says that they build them on the lower edge, and they point downward. CONRAD HAAS.

Pine Castle, Fla., Aug. 20.

[If your combs have never been reversed, and the cells are generally built near the top, pointing upward, it is very unusual; at all events, I do not know that I have ever heard of a case before—certainly I have never seen one. I have seen cells built many a time near the top edge, and all over the comb, in fact; but there was nothing unusual in that; but that their points should actually be upward is certainly something out of the ordinary. I should be very glad to know whether any of our other readers have observed any thing similar.—ED.]

BIRDS AND BEES; BEE-STINGS IN THE LINING OF THE STOMACH.

I have just been looking up the A B C of Bee Culture and a score of other works on apiculture, but fail to find in any of them any mention of the fact that the stings of bees are ever found in the stomachs of the birds accused of eating them. Some assert that the birds consume drones only; others, that they extract the stings first, or else swallow the heads only, while in the A B C of Bee Culture you suggest that the birds have a way of crushing their prey with their bills so as to prevent the possibility of the bee's using its sting.

Now, I have watched this matter very closely for many years, but it is only within the past week that I have discovered any thing very definite. Two days ago I noticed a bird called the green oriole devouring bees wholesale. Sometimes it would settle on a hive and snatch up a bee; at other times it would dart from some convenient perch and catch a bee on the wing; but most frequently it would settle in the peach-trees, which are now in full bloom, and either catch a bee as it alighted on a blossom or as it flew from flower to flower. I did not allow this pastime to continue very long, I can assure you, but shot the voracious little fiend; and on opening it I found fifteen stings in the lining of the stomach, sticking into it just like pins in a pin-cushion, some of them very firmly implanted, and imbedded almost up to the head. I sent the stomach to the Government Entomologist, and expect a report from him in a day or two.

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Yesterday I shot another of these birds, and found five stings attached to the stomach lining; but one that I shot to-day had no fewer than 27 stings imbedded in its stomach, and also one sting with its poison-sac attached, sticking in its throat just at the root of the tongue; it, however, was attached so slightly that I think the bird would very soon have succeeded in swallowing it. None of the stings in the stomach had the poison-sac attached; but the stings, being less digestible, had evidently resisted the process, and I'm sure that many of them had been in the stomach for a day or two, and certainly long after all trace of the rest of the bees had left the stomach.

We have one or two other species of birds that have recourse occasionally to a bee diet. The martins are wicked depredators in this respect; but their visits are so rare, and they are so easily decimated, from their habit of perching together in a row, that they don't give much trouble. In 1889 I also noticed our common magpies at the entrance of the hives, most unceremoniously gobbling up bees by the score; but since then, although they are here in large numbers, they have not interfered in the least. I now intend to shoot a number of these birds some distance from the apiary, and examine every one; for I have a suspicion that they may be regaling themselves at my expense on the distant flower-laden tree-tops.

H. L. Jones.

Goodna, Queensland, Australia, July 31.

[A diet of beefsteak is a boon to the sick, but a diet of *bee-stings*—I beg to be excused. It is a wonder that the stings do not kill the little fiends. I formerly supposed that they succeeded in crushing the bee before it could protrude its sting.—Ed.]

A "GOOD ONE" ON DR. MILLER.

Referring to your discussions with Dr. Miller, in Stray Straws, Sept. 1, about "separating the sections from the wood," etc., the doctor evidently has that peculiarity of expressing himself or of construing language; for he gives himself away in the very next straw, thus: "I went straight and put a pan of salt in the water." Now, any reasonable person knows that tin will not purify water; neither did Gleanings claim that it would; neither do I suppose that Dr. Miller tried any such thing. I only suppose that he emptied the pan out of the tin. However, the doctor has got the advantage of us, for he has got incorporated into the English language through the Funk & Wagnalls Standard Dictionary, definition No. 7, for "section," making it "the little frame put into a hive for storing surplus honey, in which frame it is also marketed; also the honey which is in the section." Thus he has us down. The authority of Dr. Miller, writer of Straws, we may question; but the authority of Dr. Miller, writer of definitions in the Standard Dictionary, we may not question, whether we would or not.

Referring to your article about drawn comb for sections, and your prediction that a foundation with ¼ to ⅓ inch depth of cell will soon be produced—also with reference to what Baldridge says in comment in *A. B. J.* for Sept. 1, when such comb (or foundation) has been produced will you withdraw your protest to the "Wiley lie" about artificial comb, artificially filled, etc.? That would be a long stop toward it.

A. Norton.

Monterey, Cal., Sept. 11.

[When the new comb shall be produced it will not be necessary to withdraw our protest or fight, rather, against the "Wiley lie," because there is a "heap o' difference" between empty drawn comb and artificial comb honey filled with glucose and capped over with appropriate machinery, such a product so perfect that it can not be told from the genuine. To make foundation with full-depth cells is one thing, and to fill it with glucose and cap it over as perfect as the bee is quite another.—Ed.]

BEE-ESCAPES, VEILS, SMOKERS, ETC.

By all means, use bee-escapes to take off supers; if all those who do not use them would try a few they would soon be convinced that they are one of the greatest helps in the apiary.

Always have a bee-veil ready to use in less than a minute's notice. Although I hardly ever use one, there are instances when I need one very much, and in some cases it is almost indispensable.

A good reliable smoker is also a most necessary tool to have on hand. The right use at the right time with the right fuel makes all the difference between the crossest and the most gentle bees; between obstinate and submissive ones. I am favored with a physical constitution that is very little affected by stings; and I wonder sometimes, when reading these reports in Gleanings, how different individuals can be so completely overcome by a few stings. I can not say that I like bee-stings or that I did not use all reasonable precautions to keep from being stung; but if I can not prevent it, I smile at the inevitable; a little unpleasant burning sensation for a few minutes is all I suffer unless ears or eyelids are the recipients of these love-taps, and even then it has no lasting effect. When working in the apiary right along, there are days that I do not receive a single sting I know of; and, again, at other times, more days pass that I would consider very quiet days if I did not receive from ten to fifteen or more stings a day.

A tripod, suggested by F. Greiner, is a handy device in the apiary to temporarily hang up swarms in the hiving-box. It can be set wherever it is needed. I use one made of three bean-poles, fastened together at the top, and three braces nailed six inches lower around them. These latter serve to give the necessary strength, and at the same time furnish places to hang the box.

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□Now is the time to prepare for a good supply of drawn-out sections. □For ten or fifteen years I have considered these of great importance to increase the honey-crop, and have used them accordingly. □If supers are not crowded too closely, but have plenty of room, more than we expect them to finish, we shall undoubtedly have more unfinished sections left, when the season closes, than we should have if finished sections had been our aim and less space been given. But is it not advisable and profitable to sacrifice a few finished sections of dark honey this fall, when we can produce thereby several times that amount of white honey next spring? □All sections, which are to be used in this way next season must be cleaned by the bees before being stored away. They must be kept in tight dark places to protect them from dust, insects, and all impurities, if we expect our bees to accept them readily. E. C. GREINER.

Naples, N. Y., Aug. 22.

A CORRECTION.

GLEANINGS for Sept. 1st is at hand. I am very much pleased with the illustration; but your artist has made the blunder of representing the hiving-box wrong way up, and placing the handle over the opening instead of its side, where it belongs. A swarm could not get into the box very well when dropped on its side.

Naples, N. Y. G. C. GREINER.

THIS REMARKABLE SEASON; EARLY CROPS IN THE SOUTH AS WELL AS IN THE NORTH.

□Farmers in my vicinity have picked out and sold thousands of pounds of cotton in August, which is a month earlier than I ever knew cotton picked with us. MRS. M. M. OATES.

Hayti, Mo., Sept. 3.

J. H. H., Neb.—Honey from a hive that has had foul brood is not injurious to human beings; but such honey should not be given again to bees without first boiling it. It is through the honey that the disease is transmitted from one colony to another, in the generality of cases.

W. V., Ariz.—In California nearly all the extracted honey is stored in galvanized iron tanks; but these hold a great many barrels. The galvanized tanks holding 200 gallons would be stronger, and last a great deal longer, and would not rust. Taking every thing into consideration, we should prefer tanks of galvanized iron.

J. H., Ga.—The albino bees are nothing more nor less than sports from common Italians, and have been produced by selecting the lightest stock and breeding from that stock. By continuing this process a lighter color will be secured in time. Albino stock can be produced quicker from Holy Land or Cyprian bees. Carniolans are from Carniola, a province in the southwest of Austria.

W. W. S., Pa.—We should be inclined to think from your letter that you have real foul brood. In typical cases of this disease, the brood, as a general rule, dies before it is capped. We would advise you to treat by the foundation plan recommended in our A B C book and catalog. The honey can be utilized, providing it has been boiled for at least a minute or two. It can then be fed to the bees, or you can use it on the table. The sooner you treat, the better. We would advise you not to fuss with carbolic acid.

P. A. N., Iowa.—(1) We set it down as a rule that bees will not swarm unless they have a queen or something that they recognize as such, and I hardly think it possible that your bees would swarm without one. As to moving your bees six rods (2), you should wait till after the honey season, because you will disturb them so much now that it will cost you a good deal more than the shade will be worth. (3) I would not advise you to leave the farm. Better stay where you are. Depending on bees as a sole means of livelihood is very risky. Only a very few in the United States do so, and even they have become discouraged and disgusted. The seasons are too uncertain. Bees do very well when run in connection with some other business.

C. F. C., Wis.—We are still in position to supply lamp-nurseries, such as we used to advertise. You can get almost the same result much cheaper, and quite as satisfactory, by having two good-sized tin pails, one inside of the other. Of course, the inner pail should be smaller—enough so to leave a water-space about one inch wide between one pail and the other. The smaller pail should be supported. Put the queen-cells into it, and cover with a large cushion. A common oil-lamp placed beneath the large pail will keep the water at the proper temperature. The lamp-nursery that we formerly sold was made to take brood-combs, and was made square like a hive. This is not essential; and when we were using the nursery we never used the full combs. The cells were cut out and placed on a cushion or cloth in the bottom of the nursery. As it was inspected every few hours, the queens were taken out as fast as hatched. In answer to your question, I would say that I hardly think there will be any marked difference between queens hatched in a nursery kept warm by artificial heat and those hatched in wire-cloth cages put in the center of a brood-nest. If any thing, the difference would be in favor of the latter rather than the former, as you seem to suppose.

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Mr. Danzenbaker, who has been using his new hive in Benzie Co., Northern Michigan, since the middle of July, informs us that, although he was a month too late for the season, he secured 1100 lbs. of No. 1 white comb honey from 15 colonies. He exhibited the same with his hives at the State Fair at Grand Rapids, Mich., in what was considered the best exhibit ever made by the society. He received three first premiums—one for the best honey, considering quality and manner of putting up for market; also a special diploma for the best beehive.

Geo. T. Wheadon & Co., a commission firm of Chicago, boast of being "the largest honey-dealers in the West;" but the editor of the *American Bee Journal* says he "never before this year heard of them as honey-dealers or even as general commission men." They are certainly new to us; and while they may be all right I don't like the way they take of getting patronage. They are sending out circulars broadcast, quoting honey and beeswax far too much above the market. They boast of their bank references and commercial rating; but even these do not necessarily signify that they will do as they would be done by.

Later.—We discover that this same firm have copied into their circular, word for word, a couple of paragraphs from our catalog on how to pack honey. They probably failed to observe that the matter was copyrighted. This appropriating printed matter without credit or permission may be only a straw, but perhaps it shows which way the wind blows.

The last number of the *Pacific Bee Journal* (quarterly) is a pleasant surprise. It contains 44 pages, including a tinted cover; is well printed and handsomely illustrated. On the front cover page, in half tone, nicely worked up, is a pretty group view of the editor, "his queen and little queen." The subject-matter shows enterprise as well as work on the part of its editor.

It is unfortunate that such a good start-out should be marred by the publication of an open letter from the editor directed to and attacking one of California's leading bee-keepers, Mr. Geo. W. Brodbeck, of Los Angeles—a man whom we have found to be the very soul of honor. Among where in the same journal is a paragraph that California bee-keepers none stands higher. Else-evidently refers to the same man in any thing but complimentary terms, accusing him of slander to gain his ends. Personalities of this kind, wherein the public can have no interest, ought to be kept out of print.

A NEW USE FOR BICYCLE PANTS-GUARDS.

Did you ever try bicycle pants-guards to keep the bees from crawling up your trowsers? I have, and they work admirably. I usually go to our out-yard, as you know, on the wheel; and as I can not afford to take time to put on short pants I slip on pants-guards and mount the wheel. Arriving at the yard I leave the guards on; and whenever it becomes necessary to shake bees from the combs to get cells, or for any other reason, I shake and nary a bee can get up my pants-legs.

The bicycle pants guards I refer to are what are known as the Ostergrens. They are simply steel bracelets, as it were, that just slip over the pants, pressing the folded edge snugly against the ankle. These guards can be purchased at any cycle store for about 25 cents a pair. I am not sure but they would be a legitimate article for the bee-supply dealer to handle.

THE LINCOLN CONVENTION, OCT. 7, 8.

Going to the Lincoln convention? Yes, both A. I. R. and myself expect to be present. Our route as now mapped out is via the Lake Shore to Chicago, and from that point to Lincoln via the Rock Island. We pass through Toledo at 2:5 P.M., Monday; arrive at the Lake Shore depot, Chicago, at 9 P.M. At 10 P.M. the same day (Monday) we take the Rock Island train No. 5; pass through Des Moines at 8:20 A.M. Tuesday; through Council Bluffs at 1:5 P.M.; Omaha at 1:35, and arrive at Lincoln at 3:35. We specify the route and the time of reaching the different places, hoping that our train may take on bee-keeping friends who might like to join us. We are in *hopes* Drs. Mason and Miller will be members of the "crowd."

The program is one of the best that has ever been prepared; at all events I think I am safe in saying that no secretary ever spent more time than Dr. Mason in getting up a program for the N. A. B. K. A.

No other locality has ever offered the N. A. B. K. A. such inducements. Why, just think of it! Pay your fare one way, add $2.00 to it, and that is all the expense. The generous Nebraska bee-keepers are going to afford free entertainment for all those who come from outside of that State. Such a "a pace is terrific," to use bicycle parlance, and it will be difficult for other cities to keep up. If the association ever comes to Cleveland, our nearest large city, we will be ready to bear our share of expense.

A. I. R. adds the following:

Dear friends, I fear the attendance, especially of the veterans who have from year to year been on hand, will be somewhat slim. I may be disappointed, however. The stringency of the times, and long distances, are both discouragements. But let me say that, inasmuch as the old standbys are dropping off year by year,

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it is well for us to make an extra effort to be on hand, not only because we are sure to have a good time, as we always do at those pleasant reunions, but because it is a duty we owe to our younger ones and to our nation. Those who live near by, say in adjoining States, will certainly—at least I hope so—make a great effort to be on hand. Please remember, dear brother and sister bee-keepers, that it is only once in a number of years that this national convention swings around in your locality—perhaps only once in a lifetime. You take and read the journals, and that is well; but it is worth ever so much more to meet face to face with those whom you have known only through print. You will enjoy their writings ever so much more afterward. Why, when I read Dr. Miller's Straws it seems every time as if I could see his face and hear the tones of his voice; and the same with Dr. Mason and ever so many others. Besides, by friendly meeting and friendly talk we cheer and encourage each other. We get over prejudice and warped judgment; and if you will permit me to drift a little into the theme of my talk in this present issue, let me say that we unitedly crowd out Satan and invite the refreshing influences of God's Holy Spirit. Now, please be on hand if you can possibly manage it. Remember, your old friend A. I. Root wants to see you, even if nobody else does; and there will be a good crowd of good people. If we don't find them at Lincoln it will be the first disappointment of the kind I have ever found at a national convention.

THE NEW WEED-PROCESS FOUNDATION AT THE MICHIGAN EXPERIMENT STATION.

In the *Bee-keepers' Review* for September, experimenter Taylor gives the results of a third series of experiments regarding the various makes of foundation placed in comparison with the Given, which has heretofore shown superiority. In the last series of experiments the new-process Weed foundation was placed in the test, in regard to which Mr. Taylor says:

> The showing made by the new-process foundation is very favorable indeed—a very gratifying fact, since the increased facility in manufacturing gained by the new method will have a strong tendency to decrease the price of the product.

But it seems it does not quite equal the Given wax—that is, that made on the Given press, for he says:

> In each case the Given foundation, as generally heretofore, shows a superiority, but in a greatly reduced degree.

It appears, then, that the new-process wax has brought down the degree of the superiority of the Given very greatly—so much so that they are practically equal. Now, then, if Mr. Taylor could have had wax sheeted by the new process, and put through the Given press, I feel morally certain that wax sheeted by the old dipping process, and run through the press, would have been greatly inferior. In other words, *Weed sheeted* Given would have shown decided superiority over *dipped* Given.

The test that Mr. Taylor has made, as it is, is very gratifying, showing the marked superiority of the new-process wax.

The former experiments have shown that, on all dipped wax, the press gives a foundation that is more readily worked by the bees; but the operation of the press is so slow in comparison with the rolls that it would be out of the question with a large manufacturer.

Assuming, then, that the Given-press foundation, other things being equal, is more workable than the roller foundation, why is it that manufacturers do not adopt it? Simply for the reason already given, that the press is too slow. By our new process, the sheets come out of the foundation-machine, are cut and trimmed automatically, picked up, papered, and piled as square and true as it can be done by hand, and at a pace that would astonish you if you could see how fast it is done. After all, I am of the opinion that we could secure all the advantage of the press, providing we adopt the Given side-walls, and sheeted the wax *just thick enough to fill out those walls*, and no more; but these heavy side-walls, I have been told, make a perceptible fishbone in comb honey, and that would not be desirable; and hence the present light walls of the rolls would be much more preferable to the eater of comb honey, if not to the bees that make it.

Mr. Taylor makes a mistake in thinking that the new wax is sheeted by passing "between cylinders." While I am not at liberty to give the method to the public, I would state that the Weed sheeting-machine does not use a pair of cylinders to roll down the wax.

I trust that Mr. Taylor will be in position another season to repeat these experiments, and we should be very glad to furnish him with Weed sheeted wax to try in the press.

NEW-PROCESS FOUNDATION IN ENGLAND, AGAIN.

I have already given Mr. Thos. W. Cowan's opinion, to the effect that the new-process foundation is all we claim it to be, and here is an unsolicited testimonial from another British bee-keeper that speaks volumes for it:

> Your Weed foundation, despite a strong prejudice in several quarters against it on its introduction, has literally taken the foundation market by storm. It has three great advantages over our home-made product: The bees take to it faster; there is more surface to the pound, with less liability to twist, and it is literally cheaper in most cases than English foundation. Its enemies have given it this last pull. There is also another point about it to be noted. It is of uniform quality, and the consumer knows that he is getting genuine beeswax with it. Even now I am selling quite a quantity of it at a steady rate, for "driven" bees. My own mill—I almost wish I had never invested in one—has lain idle for weeks. I shall soon have enough raw wax accumulated to make it worth while shipping it over to you to be made into Weed foundation!
>
> F. SLADEN.
>
> Ripple Court, near Dover, England, Sept. 5.

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THE NUMBER OF APICULTURAL PATENTS.

THE *Official Gazette* of the United States Patent Office for May 12, 1896, contains these paragraphs on the subject of bee culture:

Bee Culture.—In this class 1001 patents have been issued. The first movable-comb frame for beehives was patented to Langstroth, No. 9300, October 5, 1852; and improvements thereon, disclosing simple and effective means for holding removable-comb frames in the hive were patented to Heddon, No. 327,268, September 29, 1885; to Shuck, No. 329,541, October 27, 1885, and to Danzenbaker, No. 547,164, October 1, 1895.

The first artificial comb foundation was made in Germany about 1842. An effective improvement thereon is the employment of a wire support embedded in the foundation, and patented to Hetherington, No. 208,595, October 1, 1878; reissued November 11, 1879, No. 8962. An artificial honey-comb was made prior to 1853; and on January 29, 1889, No. 397,046, to Aspinwall was patented one of wood, from which the honey may be separated in a centrifugal machine; and on August 30, 1892, No. 481,578, to Mason and Moskovitz was patented an improved process for making a honey-comb from wax.

I have before stated that the Patent Office is divided into departments, each department taking a group of subjects. Linked with bee culture is the industry of tobacco, the dairy, and farm-gates. The examiner of this department, I am informed, is the oldest man on the payroll of the Patent Office—a Mr. Collamer. Of the 1001 patents (a number that seems more significant than accidental) the department has seen fit to notice only a few, and that is the list as above given.

THE ANNUAL CROP OF COMB AND EXTRACTED HONEY FOR THE UNITED STATES.

SOME two years ago I made an effort to get the manufacturers of section honey-boxes in this country to make a report of their output to Dr. C. C. Miller. My idea was that, if we could get all of them to give to him the number of sections they had made during the calendar year, we could make a sort of estimate on the amount of comb honey produced annually. Still better, if manufacturers would give their average annual output for a period of ten years to some one person, that person could figure very closely on the average annual amount of comb honey produced during that period.

Two years ago, when I tried to carry out this scheme, one of the large manufacturers refused to give their output. The consequence was, I had to give up my pet scheme for a time. But this year I have learned approximately the number of sections that were made in the United States during the past year. Making a liberal allowance for the fact that sections are under weight, so far as the amount of honey they hold, it appears that the amount of comb honey produced during this year in the United States is somewhere about 25,000,000 lbs.; and *if* there is as much extracted honey produced as comb, then the total amount of honey produced annually in this country would be about 50,000,000 lbs., or 25 000 tons. While this estimate may not be strictly accurate, it is far better than the rough guesses that have been made from year to year, and far more accurate than the government reports.

Our stenographer thought I ought to deduct something for sections on hand, not filled with honey. There were thousands (and we might say millions (of sections of *last* year's output left over. These, by the law of averages, would balance the number left on hand of this season; but this year the number left over will be less than last, because, as I have shown, the season has been better.

A QUEEN'S LONG CONFINEMENT.

SOME time ago, during the early part of the basswood flow, just for experiment I caged one queen by the Elwood plan. She was put into a Miller cage, without food of any kind, and set directly upon top of the frames. My object, of course, was to prevent that colony from swarming, as there was every indication that it would go for parts unknown in a day or two. Other colonies were forestalled in their intentions by a different procedure—generally by giving an unlimited amount of room.

Well, time went on and I had forgotten about caging this queen. I had taken supers off from this hive in the mean time, but did not examine the brood-nest, as the bees seemed normal. I ran across this particular colony, and there, very much to my surprise, was the queen caged, as lively as ever, having been confined there just two months. The bees acted normal, and I concluded that they must have raised a queen in the mean time. Examination showed that the combs were full of brood and eggs. They had evidently regarded the caged queen as they would one that they expected to supersede; otherwise it is doubtful whether they would have fed her. Two courses were open to me. One was to release the queen and let her take her chances with her daughter; but I concluded to put her into my pocket, thinking that, perhaps, I should find a colony that would need a laying queen before I got through. I accordingly closed up the hive.

The point that interests me particularly in this is that this queen bore close confinement in a little wire-cloth cage about ¼ inch thick, 1 inch wide, and 1½ inches long. It goes to show that, if we could in some way give the bees and queens proper food when sent by mail, they would go through every time without loss. As it is now, a large percentage sent out for export die in the mails before they reach distant points; and even those that do get through are more or less feeble.

Well, I continued my rounds over the apiary, when, toward the last, I began to think that I should not find a place for my queen, because I had only two more colonies to look through. Sure enough, next to the last one was in a decidedly bad way, having degenerated into fer-

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tile workers. Ordinarily, in such cases we prefer to give virgin queens or a cell, or break them up altogether, distributing the bees and brood among several good colonies. We have very often met with success in introducing laying queens; but this one I thought I would just let run loose among them. This I did, and had the satisfaction of seeing the bees circle about her in a friendly way, and even crawling up on top of each other, two or three bee-high, to look at her majesty. I closed the hive up, and expect all to go well; but I have a curiosity now to see how well this queen will lay after her long confinement, and how soon she will commence

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THE POPULAR SCIENCE MONTHLY AND ITS HUMILIATION.

It will be remembered by our older readers at least, that the *Popular Science Monthly* has "put its foot into it" pretty badly in times past on the subject of bee-keeping. The first instance was when the great scientist Prof. Tyndall tried to tell in its columns years ago how the bees make comb. Said he: "The bees place themselves at equal distances apart upon the wax, and sweep and excavate," etc.; and the *Popular Science Monthly* did not know any better than to publish and indorse such twaddle as that. Some years later they published what is now known as the "Wiley lie," to the effect that artificial comb honey was a commercial possibility, and that there was very little genuine bees' honey on the market; that comb honey was made out of paraffine, the comb filled with glucose, and the cappings put on with "appropriate machinery." Of course, bee-keepers were disgusted, and sent in their protests; but that monthly paid no attention until that scientist and scholar, Allen Pringle, some years afterward, sent them an article explaining the absurdity of the whole thing. This they deigned to notice and publish.

Well, it seems that the editors of that scientific (?) monthly have again "put their foot in it." This time, fortunately for bee-keepers, the twaddle does not relate to our industry. The following editorial note, taken from *Electricity* for September 9, will explain itself:

> It seems that the *Popular Science Monthly* has been imposed upon. Two of the faculty of the Leland Stanford University invented a hoax which was the photography of mental impressions. According to the story, eight members of a certain society were each requested to think intently of a cat, and then to gaze upon a sensitive plate in a dark-room. The plate was developed, and lo and behold! eight cats of various sizes and degrees of spectrality were distinguishable on the plate! A half-tone reproduction from this plate was printed in the *Popular Science Monthly*, together with a pedantic article on the subject of the photography of mental impressions.
>
> It seems that one of the professors had taken eight exposures of the janitor's cat, and that the composite from these exposures formed the basis of the hoax

A very little time and pains on their part to investigate some of this so-called science would prevent them from being led into such errors. For instance, how much would it have cost to ask a *practical* bee-keeper whether Prof. Tyndall's statement was founded on fact or not?

It is a wonder that they did not at a later time exploit on the advance of science when that other hoax came out that artificial eggs were made that would hatch chickens, but so far the chickens did not have feathers.

As to the cat hoax, these professors must have known that the *Popular Science Monthly* from its past reputation was more gullible than other journals of its class, and hence their joke. We should like to have seen the *cat*-aclysm that occurred in their office when the hoax, like the unfortunate cat, was "exposed."

SALOON-KEEPER HONEY-BUYERS.

Since writing the editoral in another column, cautioning bee-keepers against sending honey to commission houses that quote away above the market, I have received information to the effect that *some* of these honey-sharks are none other than saloon-keepers. They have the idea that there is big money in handling honey as well as in selling beer. Of course, they have no conscience, and quote the market away above what it actually is; and if they can make an actual purchase from the honey-producer, and are irresponsible, they will sell the honey *below the market*, and pocket the proceeds, without rendering any returns. Just this very thing was done last fall, and a prominent bee-keeper was the victim of the saloon-keeper. One of our bee-keeping friends sends us a sample of one of these circulars, which is of about the same stamp as the one I have described elsewhere. The commercial agencies give them no rating, and give their business as "saloon." That ought to be enough.

It seems like almost unnecessary repetition; but it is nevertheless necessary to say and keep on saying, Don't send honey to concerns who quote away above the market, and want to buy outright, unless you can get cash *before* turning the honey over. Either bee-keepers do not read the bee-journals they do take, or else they do not take bee-journals at all; for some one is continually being "taken in" by these sharks every year. The producer who has a few hundred pounds of honey to sell, and who can not affor to take a bee-journal, must not complain if he does get taken in pretty badly by saloon-keeping honey-men. We like to see the prices shoved up; but one thing is certain, new firms can not be expected to do as well as old ones.

MORE ABOUT THE HONEY-SHARKS OF CHICAGO; HOW TO SHIP HONEY BY FREIGHT.

Just before the publication of our last issue, information came to us regarding the existence of a ring of honey-sharks in Chicago, and I see the *American Bee Journal* is already on track

of them. It seems as I stated, that there are some disreputable firms that talk big, generally without any commercial rating, who are banded together for the purpose of bleeding bee-keepers of their honest hard earnings. As I explained in our last issue, their scheme is to offer quotations on comb and extracted honey, considerably above the market, in order to get consignments. If they can get a producer to make an outright sale, that is just what they want; because *then* they do not have to pay for the honey, nor can they be forced to, because they are irresponsible and non-collectable. If sent on commission, then of course the honey is the property of the bee-keeper, and they have got to render some returns or take the consequences.

One firm quotes white-clover honey in one-pound sections, choice, 15½ to 16½, when they know perfectly well that the market of Chicago is only 12 and 13 cts. Again, they quote bright pure beeswax at 32 to 35 cts., when they know perfectly well the right quotation is about 22 to 25.

Now, you may wonder why we do not give the name of this firm. We are at present making a very thorough investigation, and just as soon as we can make sure that they are an out-and-out fake we will give our readers their name. In the mean time we want to caution you in regard to a class of circulars from commission houses, printed on yellow paper on a sheet about 12x14, and making quotations above regular well-known houses.

Now, let me caution you again, as I did in last issue, don't, *don't* send your money to firms you don't know any thing about, even though they talk glibly about bank references, their high standing, their long experience, and all that. Just send their names on to us, and we can tell you very quickly whether or not they are responsible.

SHIPPING HONEY BY FREIGHT C. O. D.

If you *must* ship your honey to some new firm, or to some firm concerning whom you do not feel exactly satisfied with, and yet who appear to have good bank references, proceed in this way: Consign your honey to your own name, in the city or town where the honey is to be sent. Go to your nearest bank, with the bill of lading, and request them to make out a sight draft for the amount of the bill, and forward it with the bill of lading to their corresponding bank in the town or city where the honey is consigned. The bank at that place will, on receipt of the money, turn over to the parties the bill of lading, which will entitle them to get the honey at the railway station, and you, in the mean time, will get the cash.

This is the ordinary way of sending honey or any other commodity by freight C. O. D.; but in this case the bank or banks take the place of the express company as custodians of your property, and do not surrender it over until the same has been properly paid for. In many cases the banks, on presentation of the sight draft, make a liberal advance at once, providing the customer for your honey is known to them. Their rate of charge, usually, for such service, is a minimum of 25 cts.; on larger amounts, about one-fourth of one per cent.

If the party desiring your honey does not pay for the same, or refuses to take it, you can instruct the bank to turn it over to some other commission house; but it is never wise to ship honey in this way unless you are tolerably certain that the firm desiring to purchase it will take and pay for it. If it refuses, you must go to the expense and trouble of finding another house, carrying on the negotiations by telegraph, and perhaps of accepting terms which may be considerably less than what you would be willing to take, except for the fact that the honey is already shipped, and at its destination, in the hands of the railroad company, and *must* be disposed of at once.

CREATING YOUR OWN HOME MARKET.

I have nothing to say against reliable commission houses; but even with the most honorable of them, sometimes dissatisfaction arises. And then, too, you must understand, when you ship honey on commission, that you have to pay cartage, freight, and commission of generally 10 per cent. The result is, that you can not get more than 85 per cent of the market quotations, and more often not over 75 per cent.* And then, too, when everybody consigns honey to the city it has a strong tendency to depress prices. Honey, like every thing else, is subject to the law of supply and demand. Reduce the supply in the cities, and the prices must necessarily go up.

A good deal has been said about selling honey around home; but it will do no harm to say more about it. F. A. Snell and others have been writing in our columns of late a series of articles on peddling honey, and creating a home market; and there are hundreds and hundreds of bee-keepers, thrifty ones, who every year sell their honey at a large advance over the regular market quotations in their cities. Our friend Dan White, of New London, O., a bright and progressive bee-keeper, sells his honey around home; and he told me, a few days ago, that he always expected to get several cents more per pound for his honey, even including cost of labor in disposing of it, than he could get by shipping it to the city. H. G. Acklin, of St. Paul, is another example; F. A. Snell another; Geo. D. Vinal another, and so I might give you quite a list.

*At the Chicago State Convention it was figured by the members present that, when comb honey is quoted at 14 cts., the net amount received by the producer (after commission, cartage, freight, leakage, and shipping-cases have been deducted) is only 10 cts., or only 71 per cent of the market quotation. —Ed.

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Lest Satan should get an advantage of us; for we are not ignorant of his devices.—II. COR. 2:11.

I have taken the above expression away from its connection, as you will notice, and for the present we will not stop to consider the time and circumstances. The writer seems to recognize that Satan is *likely* to get the advantage of us; and in the latter part he says, "We are not ignorant of his devices." As I see it, all mankind should be able to assent to the latter. Who is there who has not had experience sooner or later with Satan's devices—yes, of his devices without end and without number? The work of his devices is sprung on us when least expected. They get in and occur everywhere; and, saddest of all, Satan *does* get more or less the advantage of us almost before we know it. How shall we recognize him? Some years ago, I think it was, I mentioned in these very papers that some of the friends called me superstitious because I believe in Satan as well as in Christ Jesus; that is, I believe in the *existence* of Satan, the enemy and adversary of the human race. Since then I have grown some years older; but my belief has been strengthened right along year by year. Perhaps I have not had so many personal encounters of my own with the great adversary, but I come on to him more and more through others. I do not mean that others introduce him to me, for Satan never seeks an introduction; that is, he never introduces himself under *his own name*. As a matter of course, he always claims to be a very good and well-meaning person. The Scriptures tell us he sometimes appears as an angel of light. He always has a very ingenious rigmarole, and he will make you believe white is black or that midnight darkness is daylight; and if you stop to listen and parley he will make his reasoning sound very plausible. How shall we know him? what are some of his "ear-marks"? Well, he is always stirring up strife. He will commence by getting in between husband and wife, as I told you in our last issue; and he will make strife between father and mother in order that he may be better able to get the rest of the family into strife and contention. He always undertakes to persuade a man that his very best *friends* are his *enemies*. He induces him to believe that his nearest and dearest friends are trying to undermine him; that they are greedy for his place, and would like to have him turned off or routed out, that they may get into his shoes. He does not *always* commence in this way, but that very soon follows. He will persuade a pupil that his teacher is his enemy; and the same with an employee. He will whisper that his employer is greedy and grasping; that he just makes a machine of all of his helpers in order that he may coin dollars and cents out of them. And then he tells the employer that his *helpers* are greedy and dishonest; that they need watching all around; that it is not safe for him to be out of sight. Oh dear me! what a sad state of affairs! The employer finally thinks he can not take time to eat and drink, to say nothing of cultivating social relations, having family prayers, and reading the Bible to his children. Satan tells him that these things are behind the age—they are old-fashioned. "Nobody nowadays," Satan says, "thinks of following up this nonsense." I wonder if *some* of you think my last words come pretty near expressing the truth in the matter.

Dear friends, some years ago Satan might have made some headway in suggesting that family worship is not as important as business obligations. I might have listened a little when he said it did not amount to any thing and did no good. Thank God, that time is past. Honest and consistent family worship lies not only at the foundation of a beautiful and happy home, but it is at the bottom of the best kind of success that a man can ever have in *any thing* in this world. I should be *afraid* to neglect daily Bible-reading and prayer. I should be afraid that Satan, with some of his "devices," would get the advantage, not only of myself, but of the dear wife and children. I recently listened to a sermon by the Rev. A. E. Thompson, an evangelist who, I believe, is now working in Dakota; and this sermon gave me some very valuable suggestions in this matter of keeping Satan out. He said it is a mistake to fight Satan face to face. As long as the old fellow can get you to look at him and strike at him he is pretty well satisfied, for he will always come out ahead in any such hand-to-hand conflict. The minister did not express it in just the language I have used, but that was his thought; and he said, furthermore, the way to resist the Devil is to show him your *back*. That may be a novel way of fighting; but, dear friend, you may have already discovered that it is the very best way in the world to fight some kinds of people and some kinds of enemies—turn your back resolutely. Do not answer them, do not notice them, do not have any thing more to do with them. I would be courteous and civil at first; but when you discover that your opponent does not intend to reason or be decent, do not waste words or attention on him. Turn away. Then what? or, in other words, to *whom* shall we turn after we have turned our backs on Satan? Why, I hardly need add that you are to turn to *Christ Jesus*. Turn to him with that little old prayer of mine—"Lord, help!" You need not be *ashamed* of asking his help, for no man or woman will *ever* find a place or *position* where they will no longer need to say, "Lord, help!" You can, with perfect safety, face the dear *Savior* always and at all times. In rescuing lost souls from the clutches of the evil one you can *even then* face the Savior and implore his help; and unless you do face him, and recognize the need of his help, you will never make any headway against Satan.

As I grow older it becomes impressed on me that the greatest trouble with poor frail mankind is, they will never acknowledge the mischief or the trouble that confronts them as of *Satan's making*. Even though they be professing Christians, they are very apt to laugh at the idea that it is the *Devil's* work instead of, as they would put it, a combination of circumstances. The Devil's work is *always* a combination of circumstances. Paul says in the text, "We are not ignorant of his devices;" but I am afraid the greater part of us during this nineteenth century are comparatively ignorant of his *wonderful resources* in the way of devices. From the position I hold here, cases are often brought up before me. There are sometimes misunderstandings, prejudice, and may be jealousy, among half a dozen. The difficulty is to look into the matter and see who is and who is not to blame. Where do right and justice lie? Well, I am often at fault in saying just who is right or nearest right; but I am sure I am not at fault when I say, "Look here, dear friends; this trouble is all of Satan's doing. You are all professing Christians. You should know from the evidences all along which I have just heard, that this is *Satan's* work and nothing else.

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You are unfortunate because you are in his toils; but you may rejoice that you are each and all professing Christians, and can honestly kneel and join with me while I implore the dear Savior to come to our rescue and to help us each and all to recognize the cause of all the mischief, and to say, 'Get thee behind me, Satan.'" There is not any trouble—at least not usually—in getting them all to kneel; and if I could as easily persuade them, each and all, that the whole trouble lies at Satan's door, then we should have quick and complete deliverance.

There will usually be more or less who think it is only one of A. I. Root's notions that it is Satan's work; and these skeptical ones (in regard to this matter of Satan) will go on facing him, and the troubles will not be ended.

Satan sometimes gets in among a lot of friends in a way that would almost seem as if it were the smallpox.* If a doctor should come into a home and announce that the whole family were afflicted more or less with the smallpox, with one accord and with perfect agreement they would *all* set to work to get it out. Now, when the pastor tells you that Satan has crept in among you, what a *glorious* thing it would be if you could be made to believe it in the same way that you would believe the doctor in the former case! Why, the most trivial things will sometimes give him an excuse for dividing friends. People who should be on the most friendly and pleasant terms, all at once, without sense or reason, begin quarreling with each other. Yes, he sometimes gets right in among *Christians* and into the *church*. I have *heard* of his getting into the pulpit; but, thank God, I have never seen him there in all my experience. Let me give you just one illustration: While a certain pastor was off on a vacation his people went to work and fitted up the interior of the church in the most beautiful shape; and then the question arose as to whether they should not invite another minister, and have services a Sunday or two before their own pastor returned. Somebody started the idea that the church should be kept vacant until the pastor's return, out of respect to him, that he might be the first to hold services amid the improved surroundings. One part of the people (and I am afraid it was a minority) thought the church should be opened and services held just as soon as the building was ready; and in discussing a simple matter like this, some of the people got terribly stirred up, and showed a most unchristianlike spirit. On general principles, it is certainly bad to have the doors of a church closed on Sunday; but I am afraid that on this occasion Satan fairly chuckled while he urged one party to declare that there should be and *must* be preaching, and at the same time exhorted the other side to the effect that it would be *disrespectful*, and not to be *thought* of, to let anybody else occupy the new pulpit and surroundings for even one Sunday.

I started out to give you a neighborly talk this time. Well, these skeptical ones, instead of accepting *my* version of the matter, will insist that it is his neighbor or his fellow-workman that causes the trouble. He says to himself, if he does not say it out loud, "This man is all very good and fair to my face; but just as soon as my back is turned he is doing every thing he can to trouble me and injure me in the sight of my employers. He purposely hinders my business; he looks over my work, and makes fun of it, and points it out to others. He is a regular 'snake in the grass.'" And when Satan gets him well under his thumb he goes so far as to say, "Either he or I will have to work somewhere else." I have seen this thing enacted for years. When it goes on a little further, the victim of Satan will declare these things he imagines are *true*. I remember one person, years ago, who had been a dear friend of mine. He became jealous of me, and imagined that I was acting dishonestly and unneighborly. I remonstrated with him, and told him his statements were preposterous; but he finally wound up by saying, "It is true, for I saw you do it with my own eyes." Now, the man did not see me do it, because he was not there at the time and place, and he was obliged to admit that much. He finally got out of it by saying something like this: "Well, I can not understand just how it happened; but I saw you do it, even if I was *not* there." There was no other thing for me to do but to think that the man had, for the time, taken leave of his senses; but he had not: he was simply under the power of Satan; and Satan had got such a hold on him that he lost sight of reason and common sense at just that particular point. He was sound enough and sane enough on every thing else.

Now, neighbors, when they get into a quarrel—when they become suspicious of each other—when they get into this awfully uncharitable spirit—*do* lose sight of sense and reason. They are like the man who declared *he* was not drunk at all; but that the truth was, all the rest of the world was drunk and he alone was sober. The remedy for all these ills and troubles is Christ Jesus, and he only; "for there is no other name given under heaven among men, whereby we must be saved." And this is true. There is no other real remedy. I am convinced that the only deliverance from the prince of darkness is through Christ Jesus, the Lord and Savior of mankind.

Perhaps I should suggest that the first step toward getting into Satan's toils is some wrong act. The one who begins to be suspicious has usually opened the way by taking advantage of somebody else. If I knew all of you, dear readers, you might think me personal, and feel hurt about it. Perhaps it is well that I do not know you—at least, that I do not know of the quarrels you are entangled in; therefore I can say with the greater prospect of doing you good, that, when you find yourself beginning to be suspicious of your friends and neighbors, it is because you have been in some way violating your own conscience. You have wronged some one of them. You have done something that you know very well is not exactly fair and honest and neighborly. Whether you are a professing Christian or not, if you wish to enjoy this life God has given us all to live, you must not only be *fair*, but you must be *liberal*. The man who gives good measure—perhaps a little more than exactly full—is the one who enjoys life, and who succeeds.

Just now a good many people find it *difficult* to hold their places or positions of employment. There are ever so many struggling to get the work that is to be done. There are unusual temptations to be greedy and to crowd on your neighbors. You may reason that *your* circumstances are more critical than those of the others—you *must* have something to do. Now, it is perfectly right for you to strive by every honorable means to hold your position. Nobody has talked this more strongly than myself; but when you go beyond right and justice

* If your neighbor is cranky, disobliging, and hard to get along with, please remember he is to be pitied somewhat as well as blamed. Try to feel toward him as if he had the smallpox, as I have put it elsewhere. Banish the bad spirit by doing him a friendly turn whenever an opportunity offers. Now, don't say this is one of A. I. Root's notions, for you know full well it was the Master who said, "Love ye your enemies; do good to those who hate you."

you are hurting yourself. If you are not honest toward your neighbor, you can not honestly ask God to bless and help you. You have by your own act cut yourself off from God, and you can not consistently breathe the little prayer, "Lord, help!" Furthermore, you have opened the way to Satan, and he will not be slow, I assure you, in improving his opportunities. Discord, dissension, strife, suspicions of other people's motives, of their honesty, integrity virtue, and every thing else, will follow in. At the same time Satan will say to you, "Oh, you are all right; do not worry or trouble yourself about it. Nobody knows what you are doing or what you have done. They do not think or see any thing about it; it is a small thing, anyhow. What is the use of being so overparticular and puritanical? At this present age and time every one has to make his own living—others must take care of themselves. If they are unfortunately situated, that is not your affair. They will have to manage it themselves as best they can." Such is the style of the Devil's reasoning. Have you ever heard any of it? Has he whispered to you? Is this quarrel you are in just now a part of Satan's work?

Dear friend, let me ask of you, when this meets your eye, are you at peace with God and all mankind? If you are not, is it not possible that what I have been telling you will lead you to discover the cause of your unhappiness? If so, you *can* get back to the Savior's feet if you are willing to bear the cross that you may *have* to bear to reach it. But let me beg of you, do not delay another day or another hour. Give up every thing—let every thing else go. Remember that heaven and earth shall pass away (these friends with whom you are having trouble will, like yourself, be soon dead and gone); but the record will be left; and these immortal souls will live on and for ever. Heaven and earth shall *indeed* pass away; but God's holy word and its teachings shall *not* pass away.

GROWING ONIONS TO BUNCH UP FOR MARKET.

As there seems to be more inquiry in regard to this branch of gardening than almost any thing else, I have thought best to consider the matter. We commence selling bunch onions here about Christmas; but we sell more of them along in January. In February there is a steady demand, and from that time till strawberry time. There are quite a few people who will buy onions to slice up like cucumbers, every day in the year. In some markets enormous quantities of them are sold, especially late in the spring, when the onions are about half grown. I remember last summer, at a time when we had concluded the bunch-onion business was over, a huckster came along with a load of stuff. It was raining, so he was anxious to sell out and go home. He had bunches of onions hung up around his wagon, and these bunches were enormous, not only in the size of the onion, but the number he gave for a nickel. I bought him out, and found that some of his bunches weighed about 3 lbs. I told him I thought he was furnishing a good deal for a nickel; but he thought he could do tiptop, even at that price. A pound of green onions, top and all, would perhaps be equivalent to about half a pound after the top is removed and the onion properly cured; so that the onions he pulled up and sold, top and all, for a nickel, would have been equivalent to $1.00 a bushel for dry onions. We rarely give over 2 lbs. to a bunch. In January and February we get a nickel for ¼ lb. grown in the greenhouse.

The prettiest onions for bunching are, without question, the American Pearl, White Victoria, or some other pearly-white onion. To grow these under glass, the seed should be put out now (Oct. 1st)—that is, if you have not done it already. A great many of the onions grown under glass are produced by putting any sort of onions that you have no other use for under the beds in the greenhouse. Put them about as close together as they can stand. Give them rich ground and moderate heat, and they will soon commence to grow. Bank up when they are well started; sift on peat or other rich soil until the tops are just covered. When they come through, put on a little more. In this way you will have long tender white stalks. These are frequently put on the table in glasses, like celery. You can grow these all winter long in the greenhouse. But a better-looking onion, with something of a bulb, is produced by growing Egyptian or winter onions, in the greenhouse. This is usually done by planting the sets outdoors some time in the fall. These are taken up just before the ground freezes, and planted under glass. Very little heat is required. In fact, very nice onions are often produced in a cold-frame, without any heat. The quality of this winter onion, as I have many times explained, is not equal to the American Pearl and other less hardy varieties; but they are so easily grown you can give a very good-sized bunch of them, even in winter. Where great quantities of bunch onions are wanted, this is perhaps best for the purpose. By mulching around the stems as I have described, these may be made to grow very long. Sometimes we see them in the market with stems white and tender, nearly a foot in length. The bottoms of these onions, or the old plants that have raised seed, are sometimes used for forcing under glass, and some gardeners prefer them to the sets. A good many, however, object to the winter onion because it is strong, and becomes tough; and almost anybody will take a bunch of American Pearl onions, even if it is only half the usual size of the winter onion when they can get it.

This brings us to the matter of growing American Pearl onions for bunching, in cold-frames, without the use of any heat except that of the sun. This is done by sowing the seed in beds (in August or September) so the onions will stand about the right distance apart, and having them about the size of onion-sets when cold freezing weather comes on. This onion is so hardy that it can stand quite a good deal of frost. Before the ground freezes up hard and solid, however, the sashes should be put over them. They seem to stand about as much frost as cold-frame cabbage-plants. In very severe localities, in cold weather it may be best to cover the sashes with shutters or straw mats; but we have never done it, and we have never had our onions much injured while they were covered with glass. It should be remembered, however, that onions are a very hardy plant, and are impatient of confinement, if we may so express it. They do much better if the sashes are off entirely whenever it is not freezing, or whenever there happens to be rain in the winter time. They seem to delight in wetness, providing they can have plenty of air. I do not mean by this that they can endure *standing* water. The plant beds should be well drained, so the water can get away. Along

in February, if the weather is warm and the sun shines very clear, you will have to give them plenty of ventilation. If managed rightly they will just grow beautifully all the spring months. In March the sashes can be left off almost entirely; and by the first of April in our locality we can take the glass away and use it for something else. Once or twice I have known a very heavy frost in April to do them some harm. The cloth sheets, however, would be all the protection needed at such a time. We generally commence by giving ¼ lb. of American Pearl onions for a nickel; a little later we make it ⅓ of a pound; then ½ lb.; then a whole pound; and when they get to be nearly the size of hens' eggs, customers seem to be so well satisfied with a bunch weighing a pound, tops and all, that we do not often give them more than that amount of this variety for a nickel. If you are going to give two or three pounds for a bunch you must grow them by field culture; and almost any variety will answer for this purpose. Where the onions stand too thick in the field, the thinnings are often used to bunch up. Very much depends on the looks of bunch onions. The bottoms must be peeled so as to make them look fresh and clean, and the tops must be of a bright thrifty green. I know it is customary in the cities to offer them at wholesale as low as 20 cts. for a dozen bunches, and sometimes they are down to 15 or even 12 cts. But, of course, these bunches are small, and generally inferior in looks. Bunch onions should be put on the market, and placed before the consumer, the very day they are taken from the ground, if possible. The labor of putting them up is considerable; but one who is an expert at the business, and furnished with rubber bands for slipping over the bunches, instead of tying, will put them up very quickly. We have grown them for years, both in the greenhouse and in open beds covered with glass, with artificial heat and without. I believe I should prefer the open beds to the greenhouse, because of the facility with which the glass can be taken off so as to give them the sun and rain. A little heat seems to be an advantage; but if you are careless, and let them get a little too much heat, you will wish, as I often do, that they were in a bed where there is no heat at all except what comes through the glass. If a greenhouse is used it should be some cheap affair that will bring the glass very near to the plants. For growing onions from the seed or sets, you want the full benefit of the sun. If, however, you want to utilize onions that have begun to sprout, and won't sell easily, they will do very well under the beds, or in a cellar where it is pretty dark. To get this rank tender growth that is wanted in the winter months, the ground should be made exceedingly rich with old fine manure. We have not received much benefit from any of the chemical fertilizers, but guano seems to answer admirably.

GROWING ONIONS FOR BUNCHING, ENTIRELY IN THE OPEN AIR.

The best onion for this purpose—that is, the best in quality—is the American Pearl; and where the sets are planted any time in September in good rich ground, so as to get well rooted before freezing weather, we have never had any trouble in wintering them nicely. We have tried them both with and without mulching. If a mulching is used it must not be laid over them so as to cover and bend down the tops. If it does, it will pretty surely cause them to rot. Short manure, so it can be sifted between the rows without covering the tops, I believe, is a benefit. Besides the American Pearl we have the new white multiplier. These may be planted very early in the spring or in September, at the same time that you plant the American Pearls. They are fully as hardy as the American Pearls—perhaps more so. They never bother us by sending up a seed-stalk, which the American Pearl does. These seed-stalks must be pinched off just as soon as you get a glimpse of them, or it will make your onion tough, and unfit for use.

And then there is one other new onion that promises great things, or, rather, bigger onions very early in the spring, than any thing else. This is what we described under the name of the Whittaker onion. It is no doubt a variety of the potato onion. It winters perfectly, and produces great solid beautiful onions, even ahead of the American Pearl; but it is a yellow onion instead of a white one. It will need more peeling to fit it for the market; but it is so hardy, and such an enormous grower, I think it is going to be a great favorite. This onion, like the multiplier, never sends up a seed-stalk. Both kinds mature, and the tops dry down some time in July. By this time they should be gathered and sorted—the small ones, medium size, and the large ones put by themselves. The three sizes had better be planted, each kind by itself. The planting should be done in August or September. No matter when you plant them, they will not grow much until we have cool weather and fall rains. The smaller ones will simply grow larger, but the larger and medium-sized ones will split up into small ones. The Whittaker onion has the rather peculiar property of making little onions which grow little suckers from the parent plant. These will mature, and be found lying loose on top of the ground all through June and July. They may be picked up and stored away for sets.

There, friends, I think I have told you briefly pretty much all I know about bunch onions for market, and the different kinds we use for the purpose.

THE BUNCH YAM AND THE VINELESS SWEET POTATO.

On page 275 of our issue for April 1 I spoke of the bunch yam. I am happy to tell you that we have succeeded in getting a very good yield of the bunch yam, and they are growing every day, too, quite satisfactorily. The best part of it is, the quality of the potatoes is most excellent. They are, perhaps, not as dry and mealy as the Jersey sweet potato; but they are very much sweeter, and as delicious as any thing I have ever tasted in the line of sweet potatoes. One of our circulars from the South states there are 14 lbs. of sugar in every 100 lbs. of potatoes, and I do not know but this may be true. This year we planted them on the poorest, hardest, dryest, gravelly ground we could find on the premises—some that had not had manure for years. In fact, the piece belongs to the railroad company, and that is the reason why I did not want to waste manure on it; and perhaps this accounts not only for my excellent yield, but for the superb quality. And this reminds me, when I was enthusiastic over raising sorghum here in the North, some thirty or forty years ago, one of the government bulletins said If you wanted a fine quality of syrup, almost equal to honey itself, you would have to raise your crop on poor, hard, dry ground; but, of course, we get a comparatively small yield of cane; but the quality is ever so much better than where you plant on the rich creek bottoms and have a tremendous growth of stalks and leaves. I wonder if this can be true with sweet potatoes. Last year, on my heavily manured deep rich ground I had a great growth of tops,

with the bunch yam, but the potatoes themselves were mostly "shoestrings."

One thing more I want to tell you about: In the greenhouse across the way, a single vine of the red yam came up, where we had raised plants the year before. It is under the glass, and has not had a drop of water during the summer; but notwithstanding the severe heat, it just grew and grew until that one vine pretty nearly fills that part of the greenhouse. I reasoned thus: The home of these yams is in the South, where it is often dry and hot, and I will just give it all the drouth and heat it wants this time. Well, I have got a sweet potato, or, rather, a yam, about the size and shape of a smoked ham, where it comes nearest the surface of the ground; and it seems about as solid as a hitching-post. I pushed my fingers down beside it, and it seemed as if it went away down. As it is growing yet with wonderful vigor I concluded to let it grow. One thing I have learned, any way: That you can grow as good sweet potatoes or yams here as I ever saw in Florida, California, or Mexico: and it was done by putting them on ground so poor that nothing else—not even weeds—would do any thing at all. May be this hint may be worth something to the rest of you. Of course, the tops have not made any thing near the growth they would have made on rich deep ground; but the potatoes are of good size, and there are enough of them already to make a profitable crop. They are just as easy to raise as Irish potatoes; in fact, ours have had almost no cultivation. The ground was so poor that there are no weeds, and so they have been left pretty much to take care of themselves. The plants were put out about the last of May, if I am correct. The ground was ridged up just a little. It was so hard that we could not work it up deep, so there were not very large ridges. It seems to me that, on such ground as this, they might be planted in rows as near as 30 inches. The bunch yam has a leaf that is lobed, or divided, into three parts, while the vineless sweet potato has a round leaf, much like that of a morning-glory—perhaps a little more notched. By keeping this in mind you can tell one from the other when you see them growing.

COLE'S IMPROVED GARDEN-PLOW WITH GANG ATTACHMENT, ETC.

I have before referred to a wheel-hoe or garden-plow manufactered by G. W. Cole, Canton, Ill. The special thing that pleases me with this tool is the large size of the wheel—2½ or 3 feet in diameter. Friend Cole has recently added a sort of gang attachment whereby the plow makes three light furrows instead of one. This does excellent work, but it runs rather hard in our clay soil unless we have a good stout man to push it. With the aid of a piece of rope, however, and a boy to pull it, we are making it do splendid work. In fact, two boys make about as good a job as can be done with a horse and cultivator. Of course, they do not run the tool as deep, nor do they cover so much ground. There is this advantage, however, in high-pressure gardening we can plant a great deal of stuff much closer together. There is no stamping-down of valuable plants in turning around. The two boys can pick up the machine and do quite a lot of work at odd spells when they are waiting for something else to be ready, for instance. We find it of great value in our strawberry-beds, when plants get rooted so thickly that we would hardly dare take a horse through it, for the boys can get around or between valuable plants. We also use it in connection with the hand weeder I illustrated in the spring. If after a heavy rain the ground has become somewhat crusted, by going through with the wheel-hoe first and then letting the boys change off and take the onion-weeder, we can fix the plants in just splendid condition. In fact, we have been doing this very thing with our white multipliers and Whittaker onions that are now up and growing beautifully. Friend Cole's gang-plow, with one boy to push and another to pull, makes a very good substitute for a horse and cultivator in a small garden, say half an acre or less. Two boys, twelve or fourteen years of age, will do lots of work, and make a garden look just handsome with the improved garden-plow with the gang attachment.

BASSWOOD-TREES FROM THE SEED.

There have been several inquiries in years past in regard to growing basswood-seedlings; and we have once or twice had a nurseryman reply; but the impression was left, if I am correct, that the matter was too difficult, and could be managed only by an expert. Well, the basswoods in front of our store, and, in fact, all along the road in front of our dwelling, have been bearing pretty good loads of blossoms and seed for two or three years past. I have several times noticed young basswood-seedlings among our vegetable-plants; but the boys who do our weeding were sure to "yank" them out sooner or later. This season I succeeded in protecting one strawberry-bed that stands just across the sawed-flagging pavement from the basswood-trees. No attempt was made to sow the seeds, mind you. The plants that came up were only from seeds carried across the walk by the wind. I have just counted 35 young basswood-trees in a bed only 30 feet long. The tallest one is about a yard high, and as straight as a whip. These vary from a few inches to three feet. They had no attention and no cultivation, except to let them grow among the strawberries. We are just now preparing some beds, and we propose sowing thousands of the seeds, which can easily be gathered by the bushel from the loaded trees. My impression is, they can be grown as easily as or easier than cabbage-plants, for they require no glass and no protection. Of course, it takes a longer time to grow them—that is, if you want them two or three feet high. We shall sow the seeds during the present month and up into October as we have beds cleared off. I believe it will be safe to put them in two or three inches deep, in mellow soil. It has been a query in my mind, whether forest-tree seedlings will thrive well on ground fertilized with stable manure; but if I were to judge from those I have mentioned, I think it is just what they want, only that the manure should be old and well rotted. The bed in question has had no manure for something over a year; but previous to that time it was mulched so heavily for strawberries that the soil may be perhaps one-fourth manure, say six inches deep. In regard to distance apart, I would put in the seeds say about four to the inch, in rows five or six inches apart. Should the seed all grow they can be transplanted when they seem to be crowding each other. It may be that they would do better without transplanting until they are several feet high; but I do not see how we can get a perfectly even stand without transplanting. After the first year they had better be put out in the fields, say a foot apart in the row, the rows wide enough to be cultivated with a horse. Where land is cheap I think they can be grown profitably for the lumber, to say nothing about bee-pasturage. In regard to the latter, I still believe the basswood-tree furnishes more honey to the world than any other one plant known—that is, where it thrives.

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SUNBURNT POTATOES FOR SEED.

In planting potatoes whole, as we have been doing the past year, there is usually so large a number in a hill that they are liable to protrude out of the ground, so as to get sunburnt. Of course, this can be prevented by hilling up; but where the potatoes are wanted for seed, we have for years considered it an advantage rather than a detriment. One of the large establishments for manufacturing potato-machinery writes us in regard to the matter as follows:

As to the second (or junior) potato for seed the next year, we would suggest one thing; and this is, if your second crop does not get ripe fully, leave them dug on top of the ground until they are thoroughly sunburnt and turned green—at least part of the potato. This will ensure them keeping well through the winter, and also a sound seed potato for the next spring. Of course, they would be unfit for cooking; but for seed it improves them one hundred per cent. Please try it.

While we would not state the matter quite as strongly as they do, we have been watching the thing for years, and are satisfied that potatoes that are burned green by being left out in the sun will keep firmer, and are less liable to rot. In sorting our potatoes we always place the greened ones among the potatoes for seed—never among those for table use. We make this explanation so our customers may not complain. In ordering potatoes the purchaser should state distinctly whether he wants them for seed or for table use.

How do you thrash sweet clover?

Linn, Kan., Sept. 14. J. T. VAN PETTEN.

We save our sweet-clover seed by thrashing the stalks on the barn floor, with a flail. As the seed ripens only a part at a time, a good deal is lost unless we clip off the mature dry branches while others are green and in blossom. Where one has enough of it, it can be thrashed with a machine, as a matter of course. Will others give us their experience in saving their seed? When it comes to removing the hulls, a clover huller is required. The biggest part of the seed we handle is sold with the hulls on.

REPORT ON THOROUGHBRED POTATOES.

You sent me last spring one pound of Maule's Early Thoroughbred potato for a new subscriber to GLEANINGS. We have just dug them, and got 119 lbs. The largest potato weighed one pound and thirteen ounces. W. E. THOMPSON.

Laddonia Mo. Sept. 11.

Very good, friend T. You have made one pound go away ahead of T. B. Terry's figures when he first tried it. You know he estimated he got about 90 lbs. from one planted. Now all you have to do is to do the same with an acre, and you are all right.

THE NEW UPLAND RICE, NORTHERN PROLIFIC.

When I made mention of this rice in our issue for September 1, I had lost the label containing the name, and here is what the originator says in regard to it:

The name of my new rice is Northern Prolific. I am glad to hear that it did well with you, as I have spent many years in perfecting it.

Dongola, Ill., U. S. A. MARTIN BENSON.

A GOOD WORD FOR THE VINELESS SWEET POTATOES AND YAMS.

I like both the vineless bunch yam and the Spanish vineless very much. They are both early, dry, and of good quality; fine keepers, and much easier to raise than the kinds with long vines.

Claremont, Va. A. F. AMES.

Health Notes.

SALT IN CISTERNS; IT WORKS WELL WITH DR. MASON.

Mr. Editor:—If it hadn't been for your footnote to one of Dr. Miller's "don't knows" I think I should not have seen what you said on page 617 about purifying the water in cisterns and wells with salt. Dr. Miller's "don't propose" amounts to nothing only as it calls you out. If, as he says, "any aerating pump . . alone ought to sweeten it," why didn't he use the pump and save the salt? Probably he would say he hadn't the pump. At any rate, he might have waited till he had tried the salt, and then we should have known whether salt has the same effect on bad-smelling Illinois water that it does on the same kind of water in Ohio.

As you ask others to "test the matter and report," I at once complied with the test part. We have a large brick cistern, 14 feet deep and 9½ feet across, the top being about three feet under ground, and made so that worms and bugs can't get in. The water runs directly from a large shingled roof into the cistern, and is not filtered. For 17 years we have used it for cooking and drinking, and all purposes about the house and barn, and you and Mrs. Root and the Root girls can testify as to its good qualities.

Generally, for a short time after a heavy rain it would taste a little like rain water; but the past summer we have had so much rain, or, rather, it came so frequently, that we have drunk rain water most of the time, and for a short time the water has been smelling and tasting as though it had "got off its base," and seemed hardly fit to use; but as we are all quite healthy, and able to digest microbes, bacteria, etc., we have kept on using it. As you know, we don't drink tea nor coffee at our house, so our drinking-water has not been boiled.

Well, as I have said, I put the salt-purifying qualities to the test at once. I removed the cistern cover and found that the cistern had about 75 barrels of water in it. I got about two quarts of coarse common salt, and sprinkled or scattered it over the top of the water, putting more near the pump than elsewhere. I then pumped a few pails of water, letting it run directly back into the cistern, and, lo and behold! the bad odor and taste had entirely disappeared, within a few minutes, and our whole family were happy. Long live the footnotes.

But, just hold on a minute if you please. "All is not gold that glitters," although I love gold, and for the same reason I love the Savior—"he first loved me." I salted the cistern water on Thursday of last week. On the following Saturday we had an unusually heavy rainstorm, and the water took on its old-time smell and taste, as after all previous heavy rains, only more so." A little of the bad smell and taste returned; but another dose of salt has made all lovely again.

I have seen many ways for purifying the water of cisterns, described in the papers, but none of them ever seemed to satisfy me; but when I saw what GLEANINGS said about salt it occurred to me that, as it is used in our food, it certainly would do the water no harm, even if it did no good.

Toledo, O., Sept. A. B. MASON.

Let me say in answer to Dr. Mason and Dr. Miller that we have had an aerating-pump of the most modern construction in our cistern for the past year; but it did not do the business until we put in a couple of pounds of salt.

Tobacco Column.

THE EVILS OF THE TOBACCO-HABIT.

Dear Brother Root:—While I am well aware that you are heartily opposed to tobacco, I don't remember that you have published any thing to show it in all its evil tendencies.

It does not follow that the plant which the Lord created at the first, and pronounced "good" as a *vomit*, as a *poultice* in case of *inflammation*, and as a *decoction* to kill lice on cattle, and on plants, is equally good to be chewed daily as a quid, or burnt for the purpose of making a smoke-pipe of our

nose. The first great plea in its defense is, "It is not hurting me." How does he know that? Not all evils manifest themselves at first, whereas we do know that it has injured others, to their death. Should we not rather do that which is positively *good*? It has been proven that it is detrimental to our mental powers. In various colleges and schools the line has been distinctly drawn, the users almost invariably falling below, and the non-users standing above. I remember distinctly a prominent professor in a theological seminary, the son of one of General Washington's aids, his memory stored with anecdotes and proofs, planning to write "The Providence of God in the Revolution." He lived to the age of eighty-seven, regretting that he had contracted the smoking habit even by the advice of his physician, and died leaving 19 pages of manuscript. He spent so much time smoking and meditating (day-dreams) that he lost his will power, and the result was almost nothing. The smoker may think he is economical; he don't spend very much. He that is unjust in the least, is unjust also in much.

Then there are very few of the users of "the weed" but disregard the laws of neatness. It is but fair to ask whether we have the right to soil the premises, or even to make filthy the street that others have to use. Another consideration, can the smoker accomplish as much work, including the time consumed in filling and lighting his pipe, and caring for it, lest it be dropped or broken? and, of course, he can not be worth as much to his employer, nor does its practice conduce to his success in life. Another very serious charge: it tends to make a man *selfish*. How often do we see a smoker enjoying his pipe, compelling his neighbor to breathe the noxious smell he is making! Is not this *selfishness*, which stands at the head of the list of wicked characters in II. Tim. 2:2? And then, you do not wish that your influence on others shall lead them to spend their time, money, and mental powers for that which has for its strongest argument, "It doesn't do me any harm." One more question: Are you willing to be one of the tools to circulate those pictures of a very questionable character that are hidden in so many packages of tobacco?

Hammonton, N. J. A. A. VANDOREN.

Humbugs and Swindles.

PROF. HUMBOLT'S ELECTRIC-LIGHT FLUID.

One day last week a man was here selling Prof. Humbolt's "Electric Fluid." I bought $1.00 worth of it, and pronounce it a fraud. The chimney was smoked just the same, it took just as much coal oil, and the light was no better that I could tell; and as to the lamp not exploding, I have lived 38 years and not had an explosion; and if I live that much longer without one, I guess I shall be nearly ready to die any way, so I do not want it on that account. The agent came into the house, talking so glibly and incessantly that one had no time to think for himself. He put in a small quantity of the powder, dipped the wick into the coal oil, set it on fire, and put it down into the lamp full of oil. Well, it did not explode, and I was convinced; and I have since been told that it would not have exploded any way, which I knew when I read the directions, which say, "Let the powder dissolve for *20 hours*." Just think of him making that wonderful experiment in less than a minute! I think 20 hours is to give the agent time to get out of the country. He also told me he had sold to every lady on the road; in fact, that he would give me $5 00 for any that he had not sold to. Now, if I could catch him I would make quite a neat little sum, as he sold to only one, or, rather, traded her $1.00 worth for a lunch; nor was that all the misrepresentation he made, but perhaps you don't care to hear any more.

MRS. F. F. JOHNSON.

Pagosa Springs, Colo., Aug. 24.

□ My good friend, I am very sorry that you have lost your dollar; but as misery loves company, it may help you a little to know that your humble servant A. I. Root was swindled out of all his money, and watch besides, by just such a chap as you describe, and just about the same sort of stuff. I paid the dollar for a little of the powder, and then paid the rest of my money and watch for a recipe to make it; but it was almost *40 years ago*. Will our friends please look out for him?

Special Notices in the Line of Gardening, etc.

By A. I. Root.

SEED POTATOES AS PREMIUMS FOR SUBSCRIBING.

Although we have been making no offers of seed potatoes to those who send money for GLEANINGS, for the past few months, quite a few seem to be expecting them, nevertheless. Now, friends, we have a great crop of potatoes—between 2000 and 3000 bushels from about 8 acres of ground. That is a pretty good yield for a "book farmer," is it not? Well, Providence has given us good measure, and we are trying to give good measure to our patrons. Last year, when potatoes had to be given away to get rid of them, we gave, as you may remember, a dollar's worth of potatoes for every dollar sent us for GLEANINGS. This year, however, the prospect is at present that potatoes will not have to be given away. Now, it is on object with every journal, especially every good journal, to get it started in new homes and new localities; therefore we offer special inducements to any old subscriber who will introduce it into a new home; so I hope no one will complain when we offer *extra* inducements to those who introduce GLEANINGS into a family where it has never been taken before. Of course, you wil see the point. In order to do this we hereby make the following offer, to be good until it is recalled:

Every person who is already a subscriber to GLEANINGS, and who will get it introduced into some home where it is *not* going already, can have a dollar's worth of Thoroughbred potatoes for getting it thus started, providing you ask for no other premium. Of course, the dollar must come with the name of the new subscriber. Potatoes are to be at the list price below; and if wanted by mail you must send the money for the postage with the dollar. Of course, you can do what you choose with the potatoes—keep them for your trouble, give the new subscriber half of them, or fix it up any way you two have a mind to. If you do not want to go to the trouble and expense of hunting up a new subscriber, make some relative or friend a present of it. Almost any person interested in gardening or growing potatoes will find GLEANINGS valuable, even if he is not a bee-keeper. So much for new names.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's *	50	75	85	1 50	2 75	5 00	12 50
Burpee's Extra Early	15	35		25	40	75	2 00
Freeman	15	35		25	40	75	2 00
New Queen†				20	30	50	1 25
Monroe Seedling	12			20	30	50	1 25
Rural New-Yorker No. 2	12			20	30	50	1 25
Sir William	15	35		25	40	75	2 00
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	35	60	1 00	2 50
Manum's Enormous	15	35	20	35	60	1 00	2 50
New Craig	15	35	20	35	60	1 00	2 50

* The above prices of Early Thoroughbred are for selected tubers, mostly from the crop grown by T. B. Terry. For seconds, half above prices. Very small Thoroughbreds, say about the size of marbles, will be sold at one-fourth prices in the table while they last. This will give every one a chance to supply himself with seed at a very moderate price so long as the small sizes and seconds last.

SEED POTATOES AS A PREMIUM TO THOSE WHO RENEW OR PAY UP PAST DUES.

Every present subscriber who renews, or every subscriber who pays up what he is in arrears, can have 1 lb. of the new Thoroughbred potato for every dollar he sends for GLEANINGS, providing he sends the postage if the potatoes are wanted by mail, and providing he asks for no other premium. Now, friends, this is a tremendous offer. The potatoes we expect to use for *this* premium offer are, first, *northern-grown* Thoroughbred potatoes. Second, they were grown in the sandy soil of northern Michigan. They are perfectly free from scab, and are the smoothest and handsomest lot of potatoes I ever

saw in my life grown anywhere. In fact, they are just perfect beauties. They are grown on Terry's plan; and, in fact, the grower, W. J. Manley, Sanilac Center, Mich., is, as I take it, a pupil of T. B. Terry's; and he has, if possible, beaten his master this time. I paid a big lot of money for these potatoes, even while I had a great stock of my own growing. I bought them just because I wanted to enjoy the satisfaction of astonishing the friends of GLEANINGS by showing them what is *possible* in a soil just right, a potato just right, and with a man who knows his business We expect to have the potatoes mailed the very day the dollars are received, and they will go right along, winter and summer, until the crop of about 40 barrels is exhausted. Potatoes can go by mail without injury from frost, at any season of the year. I can not remember that we lost a pound last season.

You will notice by reading the papers and the government crop reports that potatoes are on the advance, and we do not propose to hold the prices in the table above open while the same potatoes are worth more money in the open market; so if you want to take advantage of this offer you had better get your money in quick. If you want potatoes by freight it is a great deal better all round to order before any danger of frost.

SECOND-CROP SEED POTATOES.

There are quite a few reports of failure in getting potatoes dug in June and July to come up when planted in July and August. My opinion is that it can be managed all right, even here in the North, when we get to understand it. We have had quite a few failures, but we have had two decided successes. One was when we decided the potatoes were not going to come up, and planted cabbages in their place. The potatoes came up afterward, so we have potatoes and cabbage in one patch. The trouble was, we did not wait long enough. The second time we put the potatoes in the cellar, and kept them until they began to sprout; then when we put them outdoors in the ground they came up as nicely as they do in the spring, and now they are as green and thrifty as potatoes in June. The seed furnished by our good friend Swinson, Goldsboro, N. C., and which he said was all right to plant, did not seem to do much better than that raised here in the North There is one way in which we can make a success of it every time, but it is some trouble: Leave some of your extra early potatoes without any hilling up, so that the tubers stick out and get sunburnt. These will send out sprouts right in the hill, and start to grow—at least, they have during this wet season. Pick them out and plant them, and they will grow a beautiful second crop. Of course, you can not well afford to do this unless it is with some valuable early potato that you are very anxious to propagate as rapidly as possible.

REPORTS OF THE THOROUGHBRED POTATOES.

I planted 2½ lbs. of Maule's Thoroughbred potatoes, and harvested from them 136 lbs. of fine potatoes. EDW. SMITH.
Carpenter, Ill., Sept. 25.

In the last two days I have dug and picked up 135 bushel boxes, heaped full, and there are all of 15 more to dig. These all grew on 10 rows, each 35 rods long. I never saw the like before, and every one who sees it says the same. W. J. MANLEY.
Sanilac Center, Mich., Sept. 25.

This last report is in regard to the potatoes I have spoken of elsewhere as being such extra-nice ones. Ten rows 35 rods long, if the potatoes were planted 2½ feet apart (which is quite wide enough for the Thoroughbred) would make 52½ rods for the 150 bushels. This would be at the rate of about 456 bushels per acre of the nicest potatoes I ever saw of any kind or anywhere. We had special square rods in our own fields where the yield was at the rate of about 500 bushels per acre. A good many were drowned out on our richest creek-bottom ground.

OUR SUBSCRIPTION-LIST.

We are glad to inform our subscribers that this is now in the hands of Miss Constance M. Root, the one who used to be called "Blue Eyes," and who was born on the very day that the first copy of GLEANINGS was issued and came from the printing-press. She opens the mail, and receives all the money sent in for GLEANINGS; does all the corresponding directly with our subscribers; and by the aid of a new invention designed for the purpose she has (or will have) the whole matter of subscription, and, in fact, a brief history of every little transaction pertaining to GLEANINGS, right in her hands. As she is also a member of The A. I. Root Co., it is to her interest not only to have all our old friends continue with us, but to make as many new acquaintances as possible wherever GLEANINGS goes.

BEE-SUPPLIES IN EXCHANGE FOR HONEY.

We shall be pleased to correspond with those who desire to secure supplies for next season and pay for the same in honey just harvested. In writing, if extracted honey, send sample; if comb, give description of it, indicating grade, state how put up, what price you expect, and give a list of the goods you want in exchange. If we can not use the honey, we may be able to turn it to some one who can, and thereby find you a market for it.

HONEY FOR SALE.

We are selling choice white comb honey in 1-lb. sections, 24-lb. cases, at 15c per lb.; 200-lb. lots at 14c. Larger lots quoted on application. We have some buckwheat honey which we can offer at 11c; 200-lb. lots at 10c; larger lots quoted on application. Extracted honey in 60-lb. cans, choice new willow-herb, at 7c, 2 cans to the case; two-case lots at 6½c. Last year's honey, equally good, either willow-herb or alfalfa, at ½c per lb. less. Alfalfa in one-gallon cans, 6 in a case, for $5 00 per case. Lots of 3 cases at $4 50 per case. Write for prices on large lots if interested.

DISCOUNT FOR FALL ORDERS.

As bee-keepers generally have secured a good crop of honey this season they will feel more like investing in supplies needed next season during the fall, when they can be bought cheaper, secured in good time to put up ready for use during the winter months when you have plenty of time Beeswax is much lower than it was last spring or than it usually is in the spring. We are, therefore, able to sell foundation 5c a pound less than catalog price, and can, besides, make the usual early-order discount, which between now and Dec. 1st is 5 per cent. If you are in need of supplies let us hear from you with a list of your requirements.

KIND WORDS FROM OUR CUSTOMERS.

Do not stop GLEANINGS, for it is the only paper I take, and I can not do without it. C. F. GRUBB.
Jubilee, N. C., Sept. 7.

We are all well pleased with GLEANINGS; only wish it would come weekly. The story of Crystal Mountain is very interesting indeed. I think you will have to get Mr. Martin to give us another one, for it seems to be so much like facts.
Wellford Sta., S. C., Aug. 14. T. P. PEARSON.

The American Board of Commissioners for Foreign Missions acknowledges the receipt of $107.57 from the A. I. Root Co., Medina, O., for Armenian relief. FRANK H. WIGGIN, Asst. Treas.
Boston, Sept. 12.

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

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The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR. C. C. MILLER.

BROTHER A. I., is that Anti-saloon League dead? If not, lots of us would like to know what it's doing.

W. D. FRENCH thinks eucalyptus is the thing to plant to avoid years of failure in the honey crop.—*Pacific Bee Journal.*

LINDEN seedlings come up of their own accord on our place too, Bro. Root, where they fall from the trees on a strawberry-bed.

REV. E. T. ABBOTT says it is an advantage to mix saltpeter with sulphur half and half to make sure of burning when fumigating combs.

THE ONLY HONEY the *Pacific Bee Journal* has heard of in Los Angeles County is two tons extracted by Mrs. C. Gray, from 100 colonies. "Her theory is planting bee-forage."

"PRACTICAL WORK amid the hum of the busy bee in the apiary and the buzz-saws in the factory is what it takes to make an able editor of a bee-journal."—*S. E. Miller, in Progressive.*

FEEDING by tipping up the front end of the hive and pouring the feed right into the entrance is more or less practiced. But by some means I found a good many dead bees about the hive when I fed that way.

THE EDITOR of *Pacific Bee Journal* offers $25 to the man who comes the greatest distance outside the county and exhibits at the fair; $5 to the man who sells most honey in the exhibit building, and $3 to the man who comes from the greatest distance. If I weren't so busy I might try for that $3.

HERE'S THE WAY J. F. McIntyre weighs: "With a spring balance that weighs over 100 pounds I go along the backs of the hives and just weigh the back end: if it weighs 35 pounds I feed at once, because I know that they are just out of honey. The figures range from 35 to 70 pounds, with supers on."—*Pacific Bee Journal.*

THE CHANGE to the new color in the cover of GLEANINGS seems to meet with approval on all hands, but I hope no such adical change will occur again for a long time. haven't yet got used to it so but that I feel disappointed at not finding GLEANINGS in the mail, and wonder what that light-blue-covered thing is.

FORMERLY I thought bees both could and did cut into sound grapes, but now I can't go as far as Elias Fox, page 706, for I feel pretty sure they would if they could. Bees an tear wood, but not the softer grape. If E. F. will try biting a piece out of a big pumpkin he may understand why a bee can't bite a grape.

MY HONEY'S SOLD, but yet it's a real pleasure to see that there's a little upward tendency in prices. The fact is, that an impression got afloat that there was a bigger general crop than I think the facts warranted, and that impression made a depression in prices from which they are now beginning to recover.

ENOUGH! hold on! let up! Messrs. Editor, Skylark, and Norton. If Marengo folks are the only ones that talk about sections with no wood, then Marengo folks are wrong and must amend their English, and that's all there is about it. And yet, when the A B C talks about using up unfinished sections in one's own family——

WE GOT A GOOD HINT at Brother Packham's wedding. When the arty were seated around the room after coming from the church, among the refreshments handed round were thin slices of bread, on which a spoonful of honey was dropped in the middle. The recipient doubled the bread up, making a delightful little sandwich.—*Australian Bee Bulletin.*

C. P. DADANT did a bright thing by way of an object-lesson to the scholars of the public school. A day was set, the scholars bringing grapes, pears, peaches, to see if the bees would attack them. "A little honey served to attract the bees. They came in numbers. Then the honey was removed and some damaged fruit given them. On this they worked, though not so readily as on the honey. After they got fairly started to work, the damaged fruits were re-

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moved and sound fruits brought forward. Within twenty minutes the bees had left in disgust."—*American Bee Journal.*

PROF. COOK reports in *American Bee Journal* that a little beetle imported from Australia, a red and black lady-bird, Novius [Nedalia] cardinalis, has within two years almost entirely banished the white scale from the fruit-groves of California. He is hopeful that the black scale may also be brought to time by means of another importation, a little black lady-bird, Rhizobius ventralis.

DON'T THINK of keeping unfinished sections to use next year without having them thoroughly cleaned out this fall, and by the bees. If you extract them, let the bees clean them out afterward. See to this right away. Let the bees work on them for a few days after they have the honey emptied. The least granule of honey left will spoil them for use next season.

I HAVE about 700 colonies in the bean-fields. The honey, when thoroughly ripened, has no superior, both in color and flavor; but if taken off green or partly so, it sours in a very short time. The sage I can take off when about two-thirds or nearly capped, but the bean honey has to be well capped, and then left upon the hive for a time, for safety.—*M. H. Mendleson, in Pacific Bee Journal.*

TO AVOID having combs torn by the bees when getting them to clean out unfinished sections, use one of two ways: Put out the whole lot entirely open, so the bees will have free access to all parts. But don't do that unless you have a big lot of sections—perhaps ten or more for each colony. If you have too few sections or too many bees, pile two to five supers of sections in a pile, and close all up tight except one entrance large enough for one bee at a time.

AT WHAT AGE WILL BEES FIRST GATHER STORES?

By F. Greiner.

Will bees ever go out in search of food before being from 14 to 18 days old?

On this question authorities are as yet divided. Dr. Miller says yes; Vogel, of Germany, no. Of course, one of the two must be wrong. In the *Bienenzeitung* of 1891 Vogel had a long article in which he showed that bees, less than 18 days old, would sooner starve than go out in search of food. I was inclined to think he was right, not knowing the reasons that led Dr. Miller to arrive at *his* conclusion. But the more I thought of it, the more uncertain I became. Dr. M. would have spoken his proverbial "I don't know" if he had not had conclusive evidence. I concluded, and so I decided to settle the question to my own satisfaction; for it seems, although we may read and study the ablest written articles giving the best of proof, nothing convinces us quicker or so thoroughly and lastingly as what we have seen with our own eyes. Seeing is not only believing but knowing. I will now tell the reader what I found out.

In order to see how young a bee would work in the field I thought it necessary to form a colony out of all *just hatching* bees. So, on the 4th of June I took four nice clean combs, all worker size, and gave them to as many different colonies, placing them in the center of their respective brood nests. On the 25th of June I collected them again, placing them in a previously and especially prepared chamber with wire-screen bottom, setting the whole over a very populous colony, quilts and cushion removed. In this way, and by means of hot soapstones on top, and wrapping all in blankets, I tried to keep the temperature up to the desired point so the brood and bees would not suffer either way. When I placed these brood-combs in the above-named chamber, some bees had already commenced hatching from them; on the 28th of June quite a number of bees had gathered, forming a regular cluster. I gave them then a new and somewhat isolated location, and for a fly-hole I opened a previously bored ⅜-inch hole, being about 2 inches above the bottom-board. The oldest bees in this little colony were now just three days old; but not one came out, not even peeped out that afternoon, although the sun shone warm. The next afternoon a very few bees showed themselves; some few specked up the outside of the hive a very little around the fly-hole; but not one attempted to fly off. The next day, at 3 o'clock in the afternoon (June 30) the oldest bees being then just five days old, there was suddenly a commotion, to be noticed from quite a distance. I was at my post in a minute. Quite a number of bees were flying off and kept flying, apparently in for a play, and, judging from the specking the previous day, perhaps for a cleansing flight. This lasted some 15 or 20 minutes. Then things became quiet again. Then, all at once, I imagined seeing a bee slipping into the entrance-hole, carrying a tiny load of pollen. The bee disappeared from my sight so quickly I could not be certain; while meditating and wondering whether it really could be, another bee struck the little ⅝ inch entrance-hole, but also disappeared quickly. Several more bees came in the same fashion; and, although I was as attentive as I could be, I was still undecided whether there had been pollen in any of their pollen-baskets, the loads they carried being so

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small, hardly visible, and the bees always going from my sight so quickly.

The next bee that came was loaded quite a little heavier. This time there was no mistake —the load of pollen was there. The bee carrying it also hit the little round entrance with infallible accuracy. I mention these observations because some one might say, "A strange bee strayed accidentally found the hive." Taking into consideration that all my other hives have their entrance on a level with the bottom-board, and full width of the hives, it would seem reasonable to suppose any stray bee would drop down on the alighting-board and try to find admittance there; but although I watched quite a few more bees coming in loaded with pollen more or less, every one seemed to know just where the entrance was.

At sundown that day an examination was made. It showed that considerable work had been done to match the combs. Some honey had been changed to different places. The most surprising feature was the presence of unsealed larvæ. The small amount of open brood contained in one of the combs at the time of forming the colony on the 25th of June had not suffered, but had seemingly been cared for all right. A subsequent experiment along this line did not turn out so well. A colony having cast a prime swarm on the 26th of June was stripped from all its bees July 1st. The brood-combs were treated in precisely the same manner as in the other case, and on the third day I found all open brood perished. Why this difference, I am not fully prepared to say.

Our basswood-honey season opened on the morning of July 1st. My little experimental colony sent out its workers as regular as any other colony in the yard, they bringing both honey and pollen. No bee was at this time quite six days old. On examining the colony on the evening of this day, much new honey could be seen which dropped from the combs when held in a horizontal position.

From this time on no marked difference could be noticed between this or any other colony, except, of course, in strength. A queen was now introduced, and I should have liked to make further observations, the bees all being black and the queen an Italian; but, as it happened, she proved a drone-layer, was removed later, and one of Root's tested queens substituted. On the 25th of July she commenced to lay, and she soon filled the combs nicely. Now some of the bees are about 15 days old, and many of them may be seen bringing in pollen, the honey season being at an end.

It was not only curiosity that prompted me to make my experiment, but I think the question has a bearing upon the practical side of our pursuit. If a bee can not be induced to go out in search of food before 18 days of age, then we shall have to be all the more careful when forming new colonies and nuclei so that enough field-bees may be present to conduct the business.

I confess I have often worried over this matter, even in case of practicing the Heddon method of prevention of after-swarms, etc.

Naples, N. Y., Aug. 30.

[Friend G., the above brings to mind quite vividly some experiments of my own made years ago; and my decision, so far as I can remember now, agreed very exactly with what you say. When I first commenced with the Italian bees I was a good deal disappointed to see yellow bees all through the hive and all over the combs, but none out gathering honey or pollen. A little later they would be out in golden showers while taking their playspell; but even then the honey and pollen seemed to be all gathered by the ordinary black bees. I began to be almost disappointed, thinking the Italians were pretty to look at, but that they were not going to be good for work. After the young bees were about three weeks old, however, then they began to get down to regular field work that satisfied me. Later on, in forming nuclei under about the conditions you mention, I discovered that young Italians could gather both honey and pollen if they were absolutely *obliged* to do so; and I found that, under the stimulus of necessity, they would go out into the fields almost two weeks sooner than they did usually where there are plenty of veterans in the hive. By referring to the last part of the subject "Age of Bees," in the A B C book, you will see that the statement there agrees very exactly with the results of your experiments.—A. I. R.]

A LETTER FROM JAMAICA.

FROM AN OLD FRIEND AND SUBSCRIBER OF GLEANINGS.

By H. G. Burnet.

Friend Root:—I do not suppose that you remember that, when you were at Avon Park, at the nursery, during your Florida travels, when you and friend Keck were leaving, I told you I was tired of being frozen out in Florida, and intended to go to Jamaica, where frost and cold are unknown, and where flowers and bees can luxuriate in the warm sunshine the year round. Well, we are here—wife, son, and self, and are very well pleased with the wondrous beauty of this lovely tropic island.

You may not know that the word "Jamaica" means the "land of woods and waters," and, I might say, of caves as well; and knowing your interest in such matters I am sure you would enjoy a vacation spent in visiting the many lovely springs, waterfalls, and caves, as well as the four botanic gardens in various parts of the island. It seems strange that we should find the climate even pleasanter than that of Florida, but so it is. The mercury at our place has not been above 89°, and, in fact, reached that point only once in the past two months. But when we consider the small size of the island—144 miles long and only 49 wide at the widest point—also the mountainous character of most of the island, and the constant northeast trade-

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winds, the matter is explained. With such a climate, a copious rainfall, and rich soil, it is to be expected that vegetation grows rankly, and so it does over the greater part of the island.

Among the many varieties of tropical flowers are many that yield honey freely. Chief of these is logwood, from which the dye is extracted. It is a moderate-sized tree with small compound leaves and yellowish-white blossoms that open during the months of March, April, May, and into June. The honey is white, thick, and of a fine delicate flavor, and is first-class. The "sound of the going among the tree-tops" when logwood blooms is one that makes glad the bee-keeper. Lignum-vitæ, ebony, mahogany, and all the palm family, are noted honey-yielders, besides a host of vines, shrubs, and plants of humbler growth from which bees gather pollen and some honey. It is impossible for bees to starve unless queenless and weak. There are not very many advanced bee-keepers in the island, and only one queen-breeder. Bees are kept in boxes, gums of logs, and sections of bamboos.

In another letter I will give a further account of bee-keeping in Jamaica, with some side-lights on life in this tropic land.

Ewarton, Jamaica, Sept. 22.

[On page 603, 1895, I spoke of my visit to the nursery of Mr. H. G. Burnet. Well, I thought he was very nicely situated, and had an exceedingly pretty place at Avon Park; but you notice what he says in the letter above about Jamaica. I confess his description makes me feel very much like taking a trip to that island; but, oh dear me! it costs a lot of money to go so far, for I made some inquiry when I was in Florida; and just now it seems a Christian duty to be careful about wasting money that is needed in so many directions.—A. I. R.]

UNFINISHED SECTIONS.

HOW TO FEED THE HONEY OUT OF THEM.

By Earl C. Walker.

For two seasons I have practiced a plan of emptying unfinished sections which has been very satisfactory, and may prove of interest to comb-honey producers. After the honey season has closed I collect all the unfinished sections and place them in empty supers. Then during August and September, when no honey is coming in, I tier them up in the apiary, leaving an entrance just large enough for a single bee to pass in. The bees soon find them and carry on the "quiet method of robbing" which has been recommended in GLEANINGS. Thus the partly filled sections are cleaned up, and at the same time the bees are kept busy and out of mischief during the dry summer months.

Another plan of emptying unfinished sections is accomplished thus: At dusk, place the sections in front of any colony which may need feeding, and by morning they will be emptied. The super should be stood on end against the alighting-board, so that the bees can readily pass back and forth from the hive to the sections. The sections having been emptied, I store them away in a room free from mice and dust, and in the spring Taylor's method of using drawn combs to secure comb honey is practiced.

FEEDING AND FEEDERS.

Walter S. Pouder, in his little book entitled "Busy Bees and How to Manage Them," gives the best method I have ever heard of. It is as follows: At night tilt the hive back and prop it up with a board; then pour the syrup on the bottom-board, and the next morning the hive can be let down again, as the syrup will have been stored in the comb. Don't be afraid of drowning the bees by pouring the syrup in at the entrance, as they'll use the combs as ladders. To use this method the hives must have been in use long enough to be well propolized, otherwise there is some danger of the syrup leaking out. In the fall, when it is time to feed, I go through the apiary at dusk and prop up all the hives that require feed. I then go around with an old coffee-pot of syrup and pour about a gallon in each entrance. This I repeat two or three evenings according to the amount of feeding to be done. Feeding used to be the most disageeable and provoking work about the apiary; but by this method I find it easy. I have tried feeders regulated by thumb-screws, Mason jars with perforated lids, bread-pans filled with straw, or covered with cheese-cloth, etc., but they are all too fussy to suit me. The former have a fashion of leaking and letting the syrup run out of the entrance, while the rest are dauby, and drown the bees. The Boardman entrance feeder has none of these faults, and is the only feeder I use when a feeder is *required*; but Pouder's method given above is ahead of all, as it costs nothing, saves time, is more cleanly, and does not allow the heat of the cluster to escape as do feeders which are placed above the cluster.

BEE-PARALYSIS.

Are there two kinds of bee-paralysis? I notice bee-keepers do not agree in describing the symptoms. In GLEANINGS for July 15, page 536, under the head of "Seasonable Questions," a correspondent in his question describes the disease as follows: "The bees seem to be *swollen* up, and have a shaking motion." "On opening the hive I find many of these *bloated* shaking bees near the ends of the frames," etc. Doolittle says, "I think there is no doubt that the questioner's bees have what is called bee-paralysis." Now, I have seen several cases of bee-paralysis, and in every case the affected bees were very much *emaciated*. Quoting from the A B C of Bee Culture, "The symptoms are a sort of quivering and twitching motion, and finally the bee is so *emaciated* it looks like a

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shiny black *skeleton* of what a bee should be." Several other writers give the swollen condition of bees as a symptom of bee-paralysis. Does paralysis affect bees differently, or are there two kinds of the disease?

New Albany, Ind.

[There is one kind of bee-paralysis; but emaciated bees and bloated bees are both specimens of bees affected with the same disease. The emaciation, if the bee lives, comes on *after* the bloating.

Feeding by pouring syrup on the bottom-board from the entrance is not really practicable on hives of the loose-bottom-board type. In hives with fast bottoms, of the old Langstroth pattern, it may do very well.—ED.]

BOTTLING HONEY.

A SPECIAL MACHINE FOR THE PURPOSE.

By J. S. Fowler.

My bottler, or pump, a print of which is inclosed herewith, is designed to be inserted into the usual bunghole of the barrel, and is made fast by a couple of turns, the screw-threads at *b* tightening in the bunghole. The cut will explain itself.

There is an inner tube provided with slots corresponding to similar slots in the outer tube. There is also another but smaller opening in the inner tube, corresponding with the discharge.

By means of the solid-head piston which travels inside the inner tube, the inner tube can be turned one-fourth revolution.

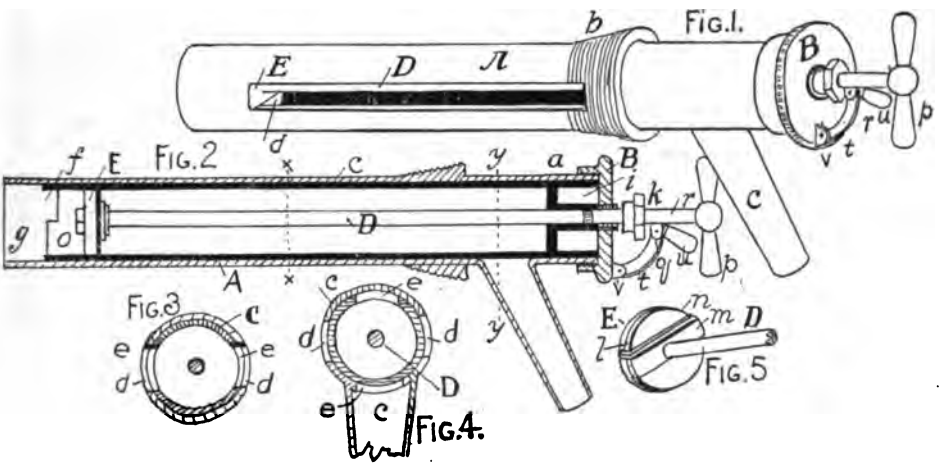
Now to operate. By means of the hand-hole outside, the inner tube is turned so as to close the discharge and open the inside slots. This part being inside the barrel, the honey or syrup immediately fills through the slots, when, by a quarter-turn of inner tube, the discharge is opened, and at the same time the inside slots are closed, thus inclosing half a pint of honey, which is now under operator's control. A pull by the handle forces it *out* of the barrel and *into* the bottle. Reverse the handle, closing the front and opening inside parts; and as the piston travels back the honey fills through the slots what would otherwise be a vacuum; and by the time the piston reaches the limit of its stroke, the pump is full, and ready for discharge.

There is no delay, no waiting for the liquid to flow *lengthwise* through the tube. As will be seen at Fig. 3, there are two slots in each tube, so that the liquid has to flow only ¼ inch from each side through said slots, to fill the pump, which it will do just as quickly as the operator can push piston to end of stroke.

To fill a bottle, hold it to the discharge, and pull the piston till bottle is full; shut off by a turn, and there will be no drip nor leak.

To fill order for one gallon, give sixteen pulls and shut off by quarter turn and it is done. No funnels are needed — no quart cup nor gallon measure to sit around for flies to stick to.

The pump can be fitted with flexible nozzle or discharge-pipe for bottling if necessary. I also use a shorter discharge-pipe than the one shown in the cut, thus obviating the necessity of a cap or plug to stop drip, as the turn of the inside tube cuts off the flow. I can fill bottles of castor oil as fast as they can be corked and set away.



FOWLER'S HONEY-BOTTLER.

It is a necessity in every grocery, and to every handler of honey a great saver of time and patience. I have been unable to put it on the market for lack of means to get it manufactured in quantities.

Grand View, Tenn., Aug. 7.

[Suppose, friend F., you send one of these machines to Byron Walker, care The A. I. Root Co., 118 Michigan St., Chicago. Mr. Walker makes a business of putting honey into glass. He can give it a good test, and report. The machine looks as if it might work well.—ED.]

RED'S transferring operations went forward systematically. The hives were prepared in the morning, then a good share of the middle of the day was devoted to the transfer, while the later hours of the day were spent in picking up tools and the various articles that help to litter an apiary. Every thing in its proper place, and put there every evening, was Fred's motto. As a result, the apiary presented a neat appearance.

Matt Hogan was a valuable aid at such times as he could be spared from the ranch, and Fred fully initiated him into the business by allowing him to make a complete transfer. He was much elated over his success, and his bee-fever was augmented to such a degree that he was ambitious to own an apiary of his own.

The first change that comes into the character of an enthusiastic novice in bee culture is the development of observation. This faculty had lain dormant in the mind of Matt Hogan; but now every flower had a new beauty, and the bee was eagerly watched as it gleaned its load of pollen or honey.

One evening he came to Fred's camp, and, with a happy go-lucky smile and considerable explosiveness, shouted, "Arrah, there, Fred! I've now an apry of me own. Get away wid yer cave of baas and yer bath-tub at the bottom of it. Me baas are more sinsible, and dwell in a badger-hole. Did yees ever hear the loikes of that, Fred?"

"Oh, yes! it is quite a common thing to find bees in such queer places in this country. But, Matt, you will have to enter into partnership with Mr. Buell. He has found a colony in a sycamore-tree. I have no doubt he has been transferring to-day, for I fitted him out with a hive this morning; and now that you have also found a colony I will do as well by you. You now know enough about bees to know what you want, and you can select any thing you want from the pile."

With many profuse thanks, Matt selected a hive and started with it for the ranch; but Fred halted him and said, "Matt, you heard what Mr. Buell said the other day about a meeting next Sunday at the Dawson ranch? I should like to have you attend with me."

"Fred," said Matt, seriously, as he placed the hive on the ground and sat down upon it, "I should loike to go wid yees; but with yer permission I'd loike first of all to ax a question. Is it a sort of Methodist camp-maating it is loikes to be?"

"Oh, no! not a bit of it. There's to be no minister there. Mr. Buell will read a little Scripture and make a few remarks, then they will organize a Sunday-school, have singing, and a profitable pleasant time generally. But, Matt, why do you ask about the Methodist feature?"

"Och! nothing much," replied Matt; "only I had a little scrap with a Methodist preacher onct. You see he came at me with a bounce to convert me from the error of me ways, as he called it. 'Why,' says I, 'me good man, I am already converted, and it's mesilf an' Biddy Malooney that are good and thrue mimbers of the Catholic church.'

' 'Oh Babylon! the toils of Babylon! the more need thin of your conversion,' he shouted.

" 'But see here, me friend,' says I, 'dhropping yer insult to me church and me intelligence, I would ax yees how it would work fur me to climb over to the M thodist side of the fince and lave me swateheart on the Catholic side?'

" 'Just the thing,' says he.

" 'And how is that?' says I.

" 'Why, you could convert her and bring her safely into the fold.'

" 'Be gorry, Mr. Preacher,' says I, 'yee'd never say that ef ye knew Biddy Malooney as well as I do.' An', Fred, to make a long sthory short, whin I held out stoutly against his timptations he said I was a son of Belial. I tould him that was a lie, fur me father's name was John Hogan. And does ye think I was much to blame, Fred, fur telling him to go to purgatory?"

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"I can not say that I do blame you," said Fred.

"Well, Fred, seein' it's only Mr. Buell and yerself that's to lead the maating I don't think I'll bees suffering much to go wid yees."

"Now, Matt, I guarantee that your views respecting religious matters will not be interfered with, and I know you can endure the hour you may spend there."

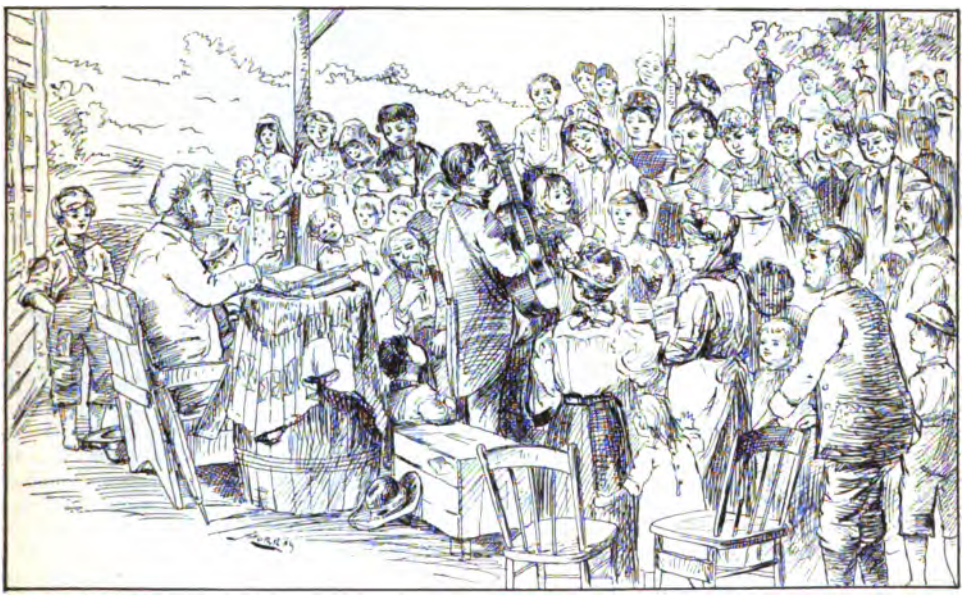
Saturday evening found the transferring job completed, with no further mishap to the operators. The few lost and old bees that persisted in going back to the old place were humanely caught in hives placed for the purpose, with a frame or two of brood to hold them when the pockets in the cave and all the other isolated cliff colonies had been transferred. Fred had an apiary of 40 good colonies, though the hives were not painted; and though there was some patchwork of the new on the old, the apiary was so arranged that it presented a neat appearance.

The week's work ended, the plans for honey production were laid aside, and the meeting plan considered with Mr. Ghering and the men at the ranch. Fred talked over the project, and the good to be accomplished; all of the men were favorably inclined to attend except José Silvera, a sombre taciturn Mexican who preferred to go up the river to a little half-breed rancheria among his kind. The meeting had been appointed for 2 o'clock Sunday afternoon; and an hour before that time Fred and the men from the Ghering ranch rode up to Mr. Buell's wharf. The latter, with Mrs. Buell, Alfaretta, and a couple of young people from the neighborhood, were ready to start.

"Here, Fred," said Mr. Buell, as he passed the guitar over to him, "this will be your instrument for the day; perhaps you can get your voice in tune while going down the river."

It was a motley crowd that gathered at the Dawson ranch. There was not much attempt at style. A few were coatless, and the urchins were barefoot. The Dawsons themselves were the worst specimens, and showed a crying need for missionary effort.

Mrs. Dawson's vinegary disposition seemed to weaken the dilution of kindly greetings, and a sympathetic interest began to awaken the latent spark of human fellowship that had been so long dormant. She began to take an interest in the preparations, and to feel that the world was not all flint and iron, but there was really flesh and blood and kindly feeling. Several religious and non-religious opinions were represented, and nearly every nationality. The West is noted as a land of mixed multitudes, and so here to-day were gathered various interests under the tule awning that had been erected for the occasion. Improvised seats had been made by placing boards across boxes; all faces wore a happy look of expectancy, for this was a new and novel experience to them; and, though they did not realize it at the time, it was an occasion that changed the current of not a few lives.



THE MEETING AT DAWSON'S.

Mr. Buell made a few introductory remarks respecting the objects in view, and stated that, as various opinions were represented, he hoped

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they could all put aside their particular creeds, and meet upon the common ground of charity and good works.

Fred was called upon for a hymn, and rendered, "I know that my Redeemer Liveth." The melody was very appropriate to his voice and the guitar accompaniment; and as the chorus rang out,

> Then ask me not to linger long
> Amid the gay and thoughtless throng,

Alfaretta, as if remembering some forgotten fragment of what she used to be, joined in the chorus, to the surprise of her immediate friends.

None were so dull they did not observe the rich blending of their voices; and at the conclusion Fred was again surprised to receive a round of applause. This was not exactly an orthodox Sunday proceeding; but in such an exceptional gathering, exceptional things were to be expected.

A lesson from the parable of the good Samaritan, and a few pointed remarks from Mr. Buell upon the blessings of helpfulness in every-day life, concluded that portion of the service.

To-day, in the absence of previous preparation for the Sunday-school, singing, reading choice moral selections, and the formation of classes, were the main features. Led by the guitar, the people readily took up the gospel hymns. With many these hymns had been a part of the home life in the far east; and here on this sunset shore these songs would come to the surface for expression in their more cheerful moments. The old remembered song has enlivened many a weary way, and has been a link to hold the heart fast to the doctrine of the great Teacher; so wherever we find a gathering of people speaking the English tongue, the singing of a gospel hymn will meet with a rousing response. The little meeting thus started was a success, and it was unanimously decided to continue it indefinitely.

The squalid condition of the Dawson children excited the commiseration of the neighbors; and the appearance of Gimp Dawson, a lad of eight years, was extremely forlorn. He wore what appeared to be his father's shirt, once white, but now the color of river mud—chocolate. One sleeve was torn off above the elbow, leaving the arm bare; the other, rent so as to expose the scrawny shoulder. The trousers were about as ragged as the shirt, and held in precarious position with a tow string.

Mr. and Mrs. Buell and Fred were looking the object over carefully, and considering what could be done to better his condition. When Mrs. Dawson noticed them she exclaimed:

"Yer see he's purty near like a ripe warnut—ready ter shuck. Now, Mr. Buell, it don't take so much cloth to kiver my tu girls as it does one kid; an' I figger that my three kids have altogether fifteen legs, arms, and heads, which are etarnally pokin' theirselves through the clothes somewhar, an' it's ben mighty hard work to keep the holes stopped or even puckered up. But whisky did it, Mr. Buell. Whisky means rags," said she, pointing to Gimp; "rags," said she, pointing to another boy with both knees out. "Rags," said she again, with more bitterness, as she shook her own soiled and torn dress.

WHISKY MEANS RAGS, MR. BUELL; WHISKY DID IT!

"Mrs. Dawson," said Mr. Buell, speaking kindly, "we all know that you have been bearing a heavy burden; and, in accordance with Scripture teaching, we are willing to help you carry your burden. Now, if you will allow Gimp to go home with us we will return him next Sunday with those holes all repaired."

"Well, I declar!" said Mrs. Dawson; "ef you ain't the fust man I've seen in twenty year that'll practice what he preaches. Generally it's preach, preach, an' no practice."

So it was decided; and though Gimp had never been from home, he was not averse to the plan.

"Now, Gimp," said Mrs. Dawson, "yeer goin'

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out mungst folks what is; these folks are eddicated. Hitch up yer collar, Gimp; speak when yer spoke tu; but otherwise keep yer tongue clapper shet down."

With this admonition she turned him over to Mr. Buell.

Before they embarked for the return trip, Fred told Mr. Buell that he could use Gimp for a few days in his apiary. "But, land o' Goshen! It would give me the lockjaw or something worse to have him around in that condition."

"Never mind that," said Mrs. Buell. "Come down Tuesday morning and we will have a brand-new boy for you."

LOCATING AN OUT-YARD.

HOW TO CALCULATE ON BEE-RANGES; HOW TO PREVENT THIEVES FROM STEALING.

By Harry Howe.

Late in the season last year I bought two lots of bees to be taken in the spring; so, over winter I had to consider where to locate them. The first step was to take out my "bee-map" and look for unoccupied territory. This map shows the results of years of study of the surrounding country as regards bees and bee-pasture. On it is marked every lot of ten or more colonies as far as I know for miles around. It is a road-map showing all the roads as well as the hills and valleys. One of the first things noticeable is that there is not a bit of unoccupied space for ten miles or so in any direction, while it is twenty in some. My rule is to draw circles of one and one half miles radius from the lots of fifty or more, and one mile from those of less than fifty. Any space not covered by these circles is unoccupied. For a new location there must be room to draw another circle without cutting any of the adjoining circles.

There is another point to be considered just here, however; and that is, that the range covered by a yard is not a true circle, but a more or less irregular figure, depending on the lay of the land. It will extend more than one and one half miles up and down a valley, but less than that over a range of hills. It is seldom that the bees will work over into another valley.

Another thing to consider is, who owns the other bees? One might hesitate to locate as close to a yard belonging to another as he would his own.

In my case I have a yard at Danby, 21 miles south. There is only one lot of forty between there and Ithaca, 7 miles. There is no buckwheat to speak of for about three miles south of Ithaca, on the Danby road, which made it necessary to locate at least four miles south of there. This gave me a space of about six square miles in which to locate.

Now came the immediate location. Up to this time I could work by the map. The field work came next. This consisted first of riding over every mile of road in the required limits. There were several conditions that had to be met. The yard must be sheltered from the wind, in a valley, in preference to uplands. It must be back from the road, where the bees could not bother passing teams, yet it must be easy to reach to work. The more secluded the spot, the better it would please me. I have no fears of any one disturbing the bees or stealing the honey. So far as I know, no one has ever taken a pound of my honey. I always make it a point to give every one who comes along all he can eat. People soon come to know that, if they want some honey, all they have to do is to get in sight when I am there. This is the plan followed by Mr. W. L. Coggshall with equal success.

The place finally chosen is on the northeast side of a valley. There was an empty house still in good condition that I rented for a honey-house, while the bees are back of the house out of sight of the road. The front yard is so grown up with trees that the bees have to rise away above the road to get out that way. The bees are in the shade about half the afternoon, which seems to be a good thing, at least during hot weather. It is only about three miles down the valley from my Danby yard.

As it stands, my three yards are all near empty houses, and far enough from neighbors so that there is no complaint of the bees disturbing any one. Mr. Coggshall has located three new yards this season, the plan pursued in each case being much the same. One of his locations was picked out two or three years ago, but was not secured until last winter. It is in the midst of a twenty-acre basswood orchard.

West Groton, N. Y.

SUPPORTING FOUNDATION.

USE OF LITTLE SQUARE STICKS INSTEAD OF WIRE.

By Dr. C. C. Miller

I am sending you a frame of brood-comb as a sample of those I am having filled out nowadays. You may remember that I had on hand the problem of getting frames filled without having any space left between the comb and bottom-bar. This I accomplished by filling the frame *full* of foundation, then cutting out a strip half an inch or more in width at a distance of an inch or so above the bottom-bar, all but an inch or so at each end which was left uncut. Two points were accomplished by this, aside from the one of getting the comb built clear down to the bottom-bar: Cutting out the strip made room for the foundation to sag, and it left the depth for sagging a good deal less.

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But some of the combs showed more or less bagging at about the place where the strip was cut out. Cutting out a wider strip didn't mend the matter, and I concluded it was the sagging of the foundation below the cut before the bees had built the upper part down to join the lower. The lower wire, which held up the lower part of the foundation, was not tense enough to hold the foundation rigidly in place.

This year, as soon as I could get the time for it, I tried various plans to overcome the difficulty. I had pretty good success by cutting out the strip only half or three-quarters of an inch above the bottom-bar, and I found it a help to take the strip that was cut out and add it to the foundation next to the bottom-bar, thus making the foundation double at that part. With a good yield of honey, such frames will be filled out satisfactorily.

Continuing my efforts to obtain the same end with less time and trouble, I finally struck on the plan of having little sticks cut out of separators to support the foundation, the sticks running from top to bottom. The foundation was generally fastened promptly to the sticks, and the foundation drawn out nicely on the opposite side, making a beautiful level surface on that side; but the bees were slow about building the foundation over the sticks, and in some cases commenced to gnaw down the sticks, or else to gnaw the foundation away from the sticks.

I then took thin strips of foundation to cover the sticks. That succeeded; and although a good deal of trouble, as the trouble would come only once in my lifetime I felt I might afford it for the sake of having combs entirely satisfactory. I tried coating the sticks by dipping them into melted beeswax after the old-fashioned way of dipping candles, or using the dipping-board in making foundation. But this did not work so well.

The sticks had to be pressed into the surface of the foundation, and this could easily be done by having the foundation warm and soft. Trying it on a cool day, I thought it would be easier to leave the foundation cold and heat the sticks. It was troublesome to make the sticks hot enough without burning them; and I found, when they were a little burned, the bees were more inclined to gnaw them down. It wouldn't do to heat the sticks in boiling water, but it might do to dip them in hot wax. I tried it, and the moisture in the sticks at once made the wax a foamy mass. But very soon the moisture was all boiled out, and then I found the hot waxy sticks were easily bedded into the foundation. For some reason I tried some of these without covering with the strip of foundation. Eureka! Instead of trying to gnaw out these wax-boiled sticks, the bees commenced at once to build upon their surface, there seeming to be enough wax on them for this purpose.

Just now, Sept. 12, little honey is coming in; but by feeding I am getting a number of frames filled like the one I send you. This morning I saw one about as much drawn out upon which the bees had been at work less than 48 hours. So it will take only 48 hours to see whether bees in Medina will work the same way. Take sticks ⅛ inch shorter than the distance between top and bottom bar—the hot wax will swell them in length—and $\frac{1}{16}$ inch square; let them be in the hot wax till the wax becomes clear; with a pair of nippers drop one on the middle of the foundation, pressing it in, then two on each side about 2½ inches apart, making 5 sticks in all, leaving a space of more than 3 in. between the outside sticks and the end-bars. With one person to lay the sticks on, and another to press them in, the work will be done in a good deal less time than the same two persons could wire the frames and imbed the wire, so it's a saving of time. The expense is more, the sticks costing a cent for each frame; but I suppose they would cost less if a large number were made. The great point about it is that the frame is entirely filled with straight comb, with no space between comb and bottom-bar. I suspect the sticks may trouble the queen about laying, although all the cells are filled with honey just as though no sticks were present.

Marengo, Ill.

[The comb the doctor sent was very nicely built out down to the bottom-bar, and the bees have apparently accepted the sticks. But I note that there has been an effort on their part to make the sticks, as far as they could, come to the sides of the cells rather than directly through the middle, irrespective of the way the sticks lie on the foundation. I am free to confess that at first I did not take kindly to this plan of staying up foundation, particularly because I thought the queen would object to the sticks, and, moreover, that, even if the queen did lay along the line of the sticks, I was afraid that the brood would not develop and be capped over normally. In talking with the doctor at the convention in Lincoln I was assured that the queen not only laid in those cells, but that brood-rearing went on over those sticks. Said the doctor:

"I believe this is one of the best ideas I ever hit upon, and I want you to look into it a little more. You see," he continued, "that it saves the time of wiring, and I can put the sticks on the foundation as fast as I can wire the frames."

"Yes, I know," I replied, "that it saves the time of wiring the frames, and that the sticks will be cheaper than the wires; but while you are about it, why not use broom-splints?"

"I had not thought of that," said the doctor. "I will try them."

It is possible that the splints would be strong enough; but at all events the doctor urged me to see if we could not get the Weed machinery to incorporate the sticks or broom-splints in the foundation itself. I have laid the matter before Mr. Weed, the inventor of the new-process foundation, and will see what can be done.

There is this to be said in favor of the wires, that they hold the comb securely to the frame irrespective of any fastening of the bees; and where frames of foundation have to be shipped or hauled to out-yards this is quite important. As I understand it the splints of the doctor's merely prevent sagging.—Ed.]

APIARY OF R. A. TOBEY, CATON, N. Y.

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R. A. TOBEY'S APIARY AND FAMILY.

The picture shows my whole family. The cat is in the girl's arms; the corner of the building at the left is my shop; honey-room in further end not shown. The woods back of the house are a swamp. The woods at the right are sugar-bushes. The fence between bees and house is a windbreak, with two panels taken down. Near the carriage is the solar extractor. On top of the Dovetailed hive near the lady is the bird-dog—a useful animal to me, as I take the birds on the wing. The top of the picture is north. R. A. Tobey.

Caton, N. Y.

REPORT FROM GERMANY.

By C. J. H. Gravenhorst.

In Germany the bees came through the past winter in very good condition. They wintered well, not only in such hives as experienced bee-keepers think best for wintering, but also in all others, even by the most careless management. The winter of 1895 was not severe, but such a one as, in other years, the bees came through with more or less losses. How did this occur? I think it was because the season of 1895 was a very good one throughout Germany. The bees had not only much honey, but this honey was first rate as food for wintering bees. Though I am of the opinion that a good sheltering hive, also that the right management (something out of the slipshod way) has something to do with the wintering of bees, I nevertheless set the greatest value upon well-capped and sufficient provisions, being careful not to disturb the colonies in any way by uniting, unqueening, etc., before they are put into their winter quarters. In more than one case I have observed that strong colonies with sufficient good honey and prolific queens will stand a severe winter, even in bad hives and on their summer stands; at least, it is so in Germany.

The German bee-keepers were full of hope after the last winter had passed, and every one of them dreamed of excellent returns in the near future; but, alas! by the quick turns of good and bad weather in April and May, many a colony lost more bees than developed; and then, as Dr. C. C. Miller says, "Every thing seems in a hurry this year." So it happened that the colonies of most of the German bee-keepers were not in working order, as the blossoms yielded more or less honey, or the bees got the swarming fever at the wrong time, if the bee-keeper did not interfere. This, and the fact that many of the blossoms did not yield as much honey as in the year before, is the reason that the honey crop failed in most sections of our country — especially where the honey harvest is over in the middle of July.

Bee-keepers who live in those sections of our country where the *Erica vulgaris* (heath) is abundant, or those who move their bees to the large heath-plains in North Germany, may get a good honey harvest; for, at the time I write this, the prospects are very good. The first part of August I carried all my bees to the heath after I had extracted all the honey they could spare. I have already had a good honey harvest, and it would have been somewhat better, like the one the year before, if every thing had not been in such a hurry. But I am satisfied with the result, and hope to be more so if the *Erica vulgaris* does not miss the mark.

After the winter had passed, my bees were in excellent condition. Later, as some of my colonies, on account of the unfavorable weather, did not thrive as I expected, I gave the weaker ones bees and frames of brood from those that could spare both, and made all my colonies equal as to bees, combs, and honey. Such an equalization I never forget in the spring, if it lies in my power to get the first swarms at a fixed time, say within eight to twelve days. The second swarms will come in due time if I prefer to have such. All this saved me much time, otherwise the strongest colonies would swarm in May and others in July. All the time from the middle of May to the end of July I should have to attend to swarming.

How do I manage my bees so I may have all my first swarms within eight or twelve days? Let me explain that. My best colonies, which, after the winter is gone, occupy nine or more frames in my hives, containing sixteen frames abreast, I encourage after their first general cleansing flight, say at the close of March or in April, according to the progress of vegetation, by feeding or uncapping some patches of their stores. This I do toward evening, when I expect a good sunny day and not a rainy one; otherwise I might feed too many bees out of the hives, which very likely would fail to return to their home. If I think it best to strengthen a weak colony at first with bees only, then I take a large feeder with food and give it to a very populous colony toward evening. If the bees then cover the feeder thickly, I take it with all the bees and give it to a weaker colony when night sets in. The bees will stay here, as many of them are young ones. I repeat this as often as I need bees, and as I have them. I never set a populous colony in the place of a weaker one to strengthen the latter, because the queens of both of the colonies may be lost. Later I take combs of brood from the best colonies, and give them the weaker ones, but never more than the bees will cover. I never take more bees or combs of brood from a colony than it can spare, but so much as is necessary to avoid swarming before the fixed time. Should there be weaker colonies in my apiary than I have bees or combs of brood to assist them, then I unite some one of them or let them alone. If some of them are

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so strong that their bees would swarm, then I brush one or two colonies on starters into a hive and give the brood-combs to others, to bring these to the swarming-point.

Now comes the swarming time, according to the weather, the progress of the vegetation, and the condition of the colonies. All the swarms which come forth as natural ones are welcome; and those which issue involuntarily I make artificial. If an artificial swarm is made in the right way, say as a true copy of a natural one, then it is by no means inferior to a natural swarm; yea, I prefer such a one as occasion may arise. I have had seasons where I did not get one natural swarm at the time I wished, so that I was forced to make them artificial. If I did not do this I should not have had the greatest yield of honey, because the colonies would have swarmed too soon.

Here I must say that I do not manage my bees so as to get a swarm from every colony in my apiaries. Some of the colonies I keep from swarming. These are, as I name them, "die Honigstocke"—colonies which are designed only to gather honey. I keep them in working order from spring to autumn. Sometimes in the season we have here an unexpected and sudden honey-flow and in such cases they will gather some surplus honey, be that at home or in the neighborhood after I have taken them there.

Thus my method is adapted only to the honey-flow of that part of my country where the bees before the middle of June, in most years, live only from hand to mouth, where all the gathered honey will be consumed by brood-rearing and building some combs. They would not have any more honey if I prevented them from building combs. That may sound paradoxical, but it is so. My experience has taught me that comb-building under such circumstances is a mere bywork; therefore I give all my early swarms only starters, and, according to their size, five, six, or more frames. These few frames are, by the by, soon filled with natural combs of only worker-cells, and are better and cheaper than such frames of comb foundation would be. As soon as these combs are nearly finished I make the utmost use of comb foundation, to have the brood-room full of combs. The honey-room is then to be filled with frames of full combs.

I must say here that I work my bees only for extracted honey, because I have not a market for comb honey—at least, it sells in Germany for not a bit more than the extracted article.

All the colonies from which I got a swarm will rear queens, and most of them will give a second swarm in due time. I let them swarm; and while the swarm clusters on the tree I transfer the mother colony to a clean hive, shake the bees, comb after comb, into it, cut out every queen-cell, arrange the combs the best I can for the brood-nest; then I bring the issued swarm (or, better still, an after-swarm) from another colony, and bring it on the combs in the prepared hive. There are one or more queens in an after-swarm; but the bees will soon select one of them, and the other will be killed. As soon as this is accomplished the colony will take up its work with the energy of a swarm; and as honey is coming in, and the hives are full of bees and combs, the colony works to my heart's content. If I were to cut out all queen-cells before swarming, and let some remain in the mother colony, in many cases it will swarm with the only one queen; and if not, I know by experience that such a colony, before it queen has deposited eggs in the cells, does not work in the field with such energy as do those which have a queen with an after-swarm. The queens of after-swarms will, on an average, get fertile sooner than queens from cells one may select by the cut-out process.

As I keep my bees according to the peculiarities of the region I inhabit, and the construction of my hive, my method will not be convenient for every one: Where there is a main flow of honey earlier than in my region, there would be an equalization of the colonies in the spring—a fault. Here one has to let the weaker colonies alone, and strengthen the best, to have them in working order at the right time. Swarming of the bees is then a fault only when it counteracts our designs for getting surplus honey.

This season, when I got the first swarm on the 28th of May, I have not had the full benefit of the honey-flow because "every thing was in a hurry." The blossoms of corn-flowers, acacias, lindens, etc., opened 10 or 12 days earlier than other years, contrary to my calculations. Nevertheless, I have had a good honey crop, and that not only by good management of my bees, but by moving with them. The right management of the bees, according to the region one lives in, does very much to gain a good honey crop; but where there is no honey in the blossoms, the best-managed colonies will gather nothing. This I know very well, and therefore I am continually on the lookout to see where there is a good honey-flow in my neighborhood. Perhaps there may have been sown rape, clover, or other honey-producing plants which are just yielding honey, while at home there is little or nothing to gather for bees. A rain may there have developed the plants better. If I one day learn that somewhere within a radius of 8 miles is a better honey-flow than at home, then I prepare one or two cartloads of my bees on the same day, and on the following morning my bees gather honey at the new place.

The hive I use is well adapted to moving with bees, and easily got ready for it. I moved some of my colonies this season to a large field of

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rape, to a plain of white clover, and in the beginning of August all of them to the *Erica vulgaris*, so that my bees at the close of the season have gathered honey on four places. Thus my migratory system has helped me so that I have not had any bad honey season in several years.

Wilsnack, Germany.

SQUARE CANS—THE RELATIVE COST OF NEW AND OLD.

A SIMPLE HOME MADE APPARATUS FOR DISTILLING WATER FOR DRINKING PURPOSES.

By S. S. Butler, M. D.

Mr. Root:—Some time ago I wrote you an article about cleaning empty oil-cans, and also about pure drinking-water. I do not take back one word that I said about cleaning well, free from rust, empty oil-cans for putting honey in. They are just as good as perfectly new cans, when *cleaned*, not partly cleaned, which can be perfectly done with unslacked lime in the way I spoke of in my article, Oct. 15, 1893. Here are a few figures:

In San Francisco, 2d and 3d quality of honey is quoted at from 2 to 3 cts. per lb.

120 lbs., at 2½	$3 00
2 new cans and case	75
	$2 25

After one has paid freight, drayage, and commission, how much would he have for his work? My cans cost 8 cts. each.

2 cans at 8	$ 16
Case	5
Material for cleaning, 1 ct. each	2
The cost of a case,	$ 23

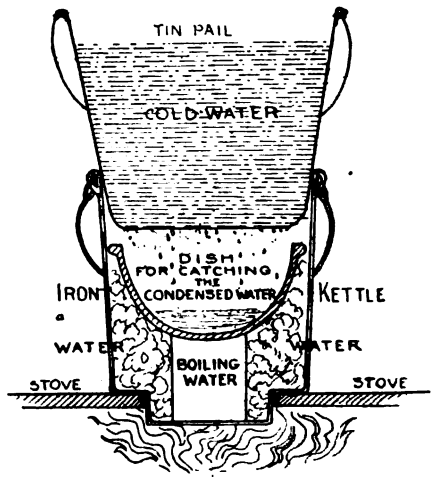
This is a clear 50 cts. saved on each case; and, Skylark to the contrary, the honey will bring just as much in my well-cleaned oil-cans as in new ones.

MARKETING HONEY.

Years ago I made up my mind that the best package to put extracted honey in was the Mason quart jar. As they represent so much cash, if one does not want to put up fruit or jelly in them they are always worth so much money. When I commenced producing extracted honey here in 1876 I got 12 to 15 cts. per lb. for it. The price gradually decreased until, when the hard times of 1893 struck us, I found that, if I wanted to sell my honey, 1st or 2d grade, I had to put the price so that it was not a luxury, but necessary—so low that it was nearly the price of syrup; so that now I keep in all the groceries of this place of 2000 inhabitants quart Mason jars of 2d grade, with a neat label on, which they retail at 20 cts.: and I let the stores have them for 18 cts., and take it in trade. I know that I do not buy any thing these hard times unless I need it and it is cheap, so it is with others. We must reduce the price or keep our honey.

DISTILLED WATER.

We should purify the water we use, outside not *inside* the body. Here is a description of my "distillery," which has been in use for nearly 23 years on our stove. Our spring comes out of a limestone ledge, and the water contains a saturated solution, or all that it can hold, of carbonate of lime; and so much collects in the kettle that it needs cleaning very often, and the whole apparatus had to be made so it could be easily taken apart.



The apparatus consists of an iron kettle, not pot, with sides straight at a certain angle; a seamless tin pail, a little more flaring, of such size that it will sit about 3 inches in the kettle, and fit snug all around, so the steam does not escape. I next found a round earthen dish, with scolloped edges, a little smaller than the middle of the kettle, which rests on a tin can. We put water into the kettle up to the bottom of the dish, which holds more than the dish will hold (when it has steamed up against the pail with cold water in it). Into this the water drops from the condensed steam.

As I said in my other article, I am satisfied that pure water is one of the hardest things to find in this world. When converted into steam, and that condensed, we have pure water. With my apparatus, whenever we have a fire it is collecting pure water for us, which we dip into a gallon jar.

Los Gatos, Cal., Aug. 8.

BAKED APPLES AND HONEY.

Here is a recipe my wife gives to the lady readers of GLEANINGS: Take ripe apples of uniform size, and with a knife remove the core by boring in at one end, but do not run the knife clear through. Place them in a baking-dish and put into each apple a teaspoonful each of honey and butter, and bake in a moderate oven. I thought they were the finest thing I ever ate.

Carpenter, Ill. EDW. SMITH.

ITALIAN BEES.

Question.—I am a beginner in bee-keeping, and have taken GLEANINGS this year. I am much interested in your department, as you make things so plain. I see much about Italian bees, and Carniolan bees mentioned once or twice; also something about foul brood. Will you be kind enough to tell us through GLEANINGS something about the bees named, and briefly what foul brood is, how to detect it, and how it is cured? I keep only black bees.

Answer.—The Italian bee belongs to one of the yellow varieties, to which also belong the Cyprian and Syrian. The Italians are very quiet and gentle, while the other two varieties named are comparatively cross and vindictive. Italians were imported into this country about 1860, while the other two were not brought to our shores till about 1880. So far, nearly all apiarists agree in placing the Italian bee at the head of all others, both as to ease of manipulation, beauty, and honey-gathering qualities. As comb-builders they are not quite as good as the black or German bees, which you say you have; neither do they use as much wax in capping their surplus honey, which gives the surplus product a little inferior appearance, or what is termed a "watery look." They cling very tenaciously to their combs, while the black bees often fall off when the combs are being manipulated, or run about in a frightened way. This tendency in the Italian bee makes the handling of the hives and combs very pleasant; but when we wish to get them off the combs for extracting the honey, or for any other purpose, it requires more work. However, the main point of superiority of the Italian bee is its honey-gathering qualities. If there is any honey to be had they are away to the fields after it, and will toil incessantly all day for a very little, while the black bees often do not work at all unless honey can be gathered quite freely. Italian bees will labor faithfully all day long for only "pennies," while the German bee must have "dollars," or it doesn't propose to work at all. To illustrate:

About the time I first procured the Italian bee I had fifteen colonies of blacks and three of the Italians. As an experiment a fourteen-quart pail of maple sap was placed in shallow dishes, after adding a pound or so of sugar, so as to make a very thin sweet. With honey the bees were started to work near this sap; and as long as the honey lasted they came in about the proportion named above—fifteen of the dark and three of the yellow. As soon as the honey was gone they took to the sap; but soon the black bees began to stop coming, so that in an hour scarcely any but Italian bees were carrying the thin sweet. These bees worked till they carried all the sap home, while the black bees thought it not worthy of their notice.

CARNIOLAN BEES.

Carniolan bees are natives of Carniola, and were imported into this country mainly through Mr. Frank Benton, now of Washington, D. C., but then of Munich, Germany. There seems to be a difference of opinion regarding these bees, some extolling them very highly as comb-builders and honey-gatherers, while many more have no words of favor for them. Some years ago I obtained a Carniolan queen, and, from careful experiments, comparisons, and inspections, I could not think otherwise than that they a were a peaceable strain of the German bee. I then got rid of them, as there were several traits about them I did not like, the two main ones being that they were bound to swarm all through the honey-harvest, while the most of the honey gathered by them was consumed in brood-rearing, so they gave little surplus, and were universally short of stores for winter. Later on, I was led to think that I did not have the genuine Carniolans, so procured other stock from parties supposed to have the simon-pure article, if there was such a thing. But these last proved to be little if any different from the first; and after a careful test of the same, which gave no different results, I did away with them again, since which I have let them severely alone. They are said to be of a steel-blue color; but close observation failed to find them of such color farther than the black bee shows it. I wish I could give a more favorable report of these bees; but when I say any thing about tests which I have made, all I can do is to tell the same just as I found it to be. To do otherwise would be to be untrue to myself and untrue to those who read what I write.

FOUL BROOD.

Probably there is no one thing in bee-keeping that has had more care and study given it by apiarists than foul brood, and probably no study which has given as little satisfaction, for we are but little nearer a solution of the true cause of the disease than we were when Quinby wrote about it in the early sixties. When a colony has this dread disease, a few of the larvæ die soon after the bees seal them over. The capping to the cell soon has a sunken appearance, quite often with a pin-hole in the center, though not always so, as some claim. Upon opening the cell the larva is found stretched at full length in the cell, having a brown appearance, while all healthy larvæ or pupæ are white. If touched, this dead brood is of a salvy, soapy nature, and gives off an offensive smell. From the first few cells the disease spreads rapidly till the combs become a putrifying mass, generally during the first season, and nearly always during the second, the

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stench at this stage often being smelled a rod or two from the hive. A few of the larvæ mature into bees, and the population of the hive decreases till they become a prey to robbers, when the honey is taken off by these robber-bees, only to carry the seeds of the malady to the robber's hive, for the disease is spread through the honey as well as from any thing coming in contact with it. The cure is to drive out all the bees from the affected hive and keep them shut up in an empty box until they are nearly starved, so that they shall have digested all of the diseased honey. They can now be hived in a new hive containing comb or comb foundation, without carrying the disease with them. If they are to be hived in an empty hive, this starving process has been proved unnecessary, as the diseased honey is all used up in comb-building before any larvæ are hatched to which it can be fed. Great care should be taken that no bees get at the contents of the old hive before the combs are rendered into wax, and the honey and hive scalded. Other cures have been recommended, but most of them are ineffectual, except in the hands of an expert.

Heads of Grain from Different Fields

THE FATAL STINGING OF A HORSE.

Mr. Root:—On page 680 you ask, "Will bees kill a horse?" This can be answered in the affirmative by myself and son. The time was March, this year. The best animal of three was staked out, or picketed, about a quarter of a mile from the apiary. We were busy making foundation, and did not look after the animal till noon. The bees were after her, then she was so crazed that it was with great difficulty we got her away from the bees, and they away from her. My son received a severe kick which came near breaking a leg. In two hours from time of rescue the mare was dead.

Tulare, Cal. J. F. Boldon.

FURNITURE-NAILS AS FRAME-SPACERS.

Dr. Miller has discussed spacing by means of small nails. Seven or eight years ago I used a conical porcelain or brass-headed cabinet-maker's nail, or tack, which I regarded as a very excellent device for the purpose intended. They were driven into the frame at alternate ends. They were used in hives made by myself out of shoe-boxes, having frames 10x10 inches, and used in the extractor. I found they interfered but little in the use of the uncapping-knife, as it would glance off the conical point without dulling, and never became entangled in the wire of the extractor. J. B. Enos.

Charleroi, Pa., Sept. 30.

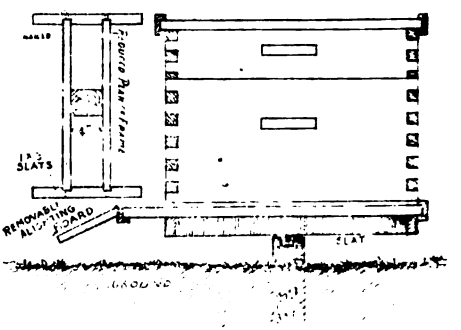
PICKLED BROOD AND FOAMY HONEY.

Last Saturday I went through my bees to see what amount of feeding they needed for winter. I found brood, and also what I thought was foul brood. I then got six copies of Gleanings to look for a cure. I found an article on page 609 and page 683. I was convinced the disease was the same. I found three of the symptoms of foul brood lacking: 1. The cappings were not sunken; 2. The brood was not ropy; 3. The brood was not dark. The writer on page 683 thinks the trouble is caused by foamy honey. I think the same. After the honey season was over I had some sections unfinished, and took them off, for the weather was very hot and bees very strong. I thought I would put the sections on again to give them room, and let them take out the honey. I noticed the honey was foamy, and I believe it was the cause of the diseased brood. I felt a great deal better when I found it was not foul brood, although it is bad enough as it is. I hope it will not get any worse. I had trouble enough last summer with swarming after the honey season was over. It was an every-day thing to have a swarm.

W. L. Richmond.

Lexington, Ky., Sept. 23, 1896.

WARE'S HIVE-STAND.



Mr. Root:—The above cut represents one of your make of hives that I am now using. You will please notice that it is resting on a slot frame, fastened to a post 3x4 inches square, put in the ground, allowing the hive to be about 6 in. from the ground. I have 8 hives, and I wish to fix them so I may keep the grass cut short under and around them. Now, will you please be kind enough and tell me whether there is any objection to having the hives put up on a post as in the above sketch? If you will kindly give me the information I desire I will consider it a favor. W. F. Ware.

Bridgeton, N. J., Aug. 12.

[Your stand is good, especially as it will allow the lawn-mower close up around and under the hive. It would cost a little more than the ordinary stands that rest on the ground. During a heavy honey-flow some of the bees would drop just in front of the entrance. They would

be obliged to take wing. But this would be no great drawback if the grass were always kept kept down.—ED.]

A cement made of four parts of rosin, one of beeswax, and one of brickdust, melted together, will fasten the handles of knives, forks, and similar tools which may have become loosened.

Cleveland, O. R. V. MURRAY.

As the copy for "Straws" in this issue arrived during my absence at Lincoln, the usual footnotes do not appear.

THE Lincoln convention, considering the times, was a success in every way. As we had reason to expect, the Nebraska bee-keepers have set a "terrific pace" in the way of large-hearted hospitality. Great credit for the success of the convention is due to Messrs. Stilson, Whitcomb, and Heath—the latter of the *Nebraska Farmer*. A. I. R. having arrived home sooner than I, by two days, has prepared a general report of the whole convention, and the same appears on page 762. Some features of it will be taken up by myself more specifically in our next issue.

MAKING SYRUP FOR FEEDING.

YOU will remember last season we made all our syrup for feeding, by the cold process *a la* Salisbury; viz., by pouring 3 parts of sugar and one part of water into an extractor-can, and turning the reel vigorously for some two or three minutes. After it stands for half an hour it is ready to draw off—a perfectly limpid syrup. Well, such syrup last year wintered our 200 colonies as nicely as any syrup made by the use of heat. It is needless to say that we are using the same method this fall. The syrup is made right out in the apiary, where we are to use it. It is drawn off into feeder-cans, and poured into feeders. As to feeders, the Boardman is the one that we are using this year. It feeds slowly, and one can tell at a glance how fast the syrup is taken up.

EMPTY COMBS IN GLUCOSE.

SOME time ago I referred to the fact that we had an inquiry for drawn-out empty comb. The nature of this request, and line of business (syrups, honey-drips, wax, etc.), made it evident that the comb was desired to put up in jelly-tumb'ers of glucose—the comb to give it an appearance of honesty. Within a few days we have received another such request. This is the way it reads:

Gentlemen:—Please send us samples and quotations of imitation honey-comb. We want something that will do to put in glass packages of *strained honey*, so that it will *look* like a small piece of honey in the comb was in the package."

Italics mine. I am at present looking up this firm. While the letter is not strictly grammatical, it seems very evident that glucose and dried comb was what they intended to palm off as pure honey.

The way the honey-sharks are operating, and the glucose-mixers are palming off their goods as honey, shows that the Bee-keepers' Union ought to be taking hold of these chaps instead of frittering away its time on the defense matter, now a dead issue. Chicago, its home office, is the place to begin work.

THE STRONG ARM OF THE LAW.

IN our last issue I had something to say regarding the firm of Geo. T. Wheadon & Co., 198 South Water St., Chicago. You will remember that this is the commission house which represented that they were the largest honey-buyers in the West, and talked glibly about their "bank references" and "commercial rating." Some rather startling information appears in the Chicago *Tribune* of September 26. It would appear from the subjoined that the "master mind" of Geo. T. Wheadon & Co. and other firms is this same A. S. Terrill. It will speak for itself:

ON A. S. TERRILL'S TRAIL.

EVIDENCE OF PECULIAR COMMISSION TRANSACTIONS IN HAND.

DETECTIVE EDDY SAYS HE IS PREPARED TO INSTITUTE COURT PROCEEDINGS WHICH WILL RESULT IN CONVICTION OF FRAUDULENT DEALINGS—NAMES OF FIRMS WHICH HAVE RECEIVED CONSIGNMENTS AND THEN DISAPPEARED—LIST OF VICTIMS SAID TO BE LARGE.

Detective E. B. Eddy says he has in hand sufficient evidence to convict A. S. Terrill, who has a record in South Water Street commission circles, of fraudulent dealings.

The United States Express Company recently took up the case of Terrill, whose career has been referred to frequently in the *Tribune*, and put Detective Eddy at work to unravel the complicated situation of affairs which is said to have cost farmers of the West thousands of dollars in the last few years. Mr. Eddy says he will institute proceedings in court at once.

A. S. Terrill has been known as the head of half a dozen concerns which were held in bad odor by South Water Street merchants. The different firms which he organized, it is said, sent agents throughout the country to solicit shipments of produce. As an inducement, prices were offered a few cents above the market, and all kinds of favorable conditions were pictured. When the shipments were handled the consignee often failed to receive his money, it is said; and when he came to Chicago to see about it, he would have all kinds of trouble in locating the responsible parties.

These different concerns were broken up time and again, but only to appear under new names, and repeat the tricks of the former firm.

The master mind behind the scenes was said to have been Terrill. The headquarters were at No. 198 South Water Street, with an office for Terrill himself in the Unity Building. At different times the business was conducted under the firm names of Terrill Bros., Klinger, Helm & Co., Lawrence Produce Co., E. V. McConkey & Co., W. B. Paine, and George T. Wheadon.

The law offices of the city are full of complaints and unpaid bills which A. S. and W. V. Terrill and McConkey are to be asked to account for.

Mr. Eddy's office was visited by a large number of victims or their representatives yesterday, and he has a large number of claims which he is preparing to collect if possible. The following are on the list of those who have lost money.

C. A. Dare, Chesterville, Ill	$640
J. A. Kemp Grocery Co., Wichita Falls, Tex	500
L. Malmstadt, Gillette, Wis	240
P. R Sanders, Brooken, I. T	26
C. C. Trowell, Bradish, Neb	108
W. G. Brookes & Co., Colono, Iowa	118
Jules Worst, Lebanon, S. D	16
H. Grab & Marvis, Marion, Wis	40
Childs & Coulter, Kasbur, Ill	176
J. S. Hall, Box Elder, Texas	121
Cooperative Creamery Co., Hollendale, Wis	36
J. W. Molone, Bridgeport, Tex	29
W. H. Coursey, Louisburg, Ky	20
John Voca, Wesley, Tex	56
W. M. Koonce, Boyd, Tex	26

There are hundreds of these complaints which have been accumulating for several years, and as many as possible of them will be brought forward. One of the first results of the hunt by Eddy for the head of the concerns was a personal encounter with Terrill, in which the latter, it is said, threatened to kill the detective.

PARAFFINE VERSUS BEESWAX.

The new Weed-process machinery for sheeting wax has enabled us to compete for the dental trade. In making artificial teeth, dentists use sheets of wax about $\frac{1}{16}$ inch thick by 5 inches long by 2½ wide. These sometimes are pure beeswax, and sometimes contain a portion of paraffine. Of course, the former is sold at a higher price. We have been supplying some wholesale dental houses with both articles. One thing that surprised us greatly is that the new Weed machine will not handle satisfactorily a *mixture* of paraffine and beeswax. For the foundation business this is of no importance, because we can't use and don't want adulterated foundation, but in the manufacture of dental wax it was somewhat of a disappointment.

We have never handled paraffine before in our experience, except some 20 years ago, when we tried a few pounds of beeswax and paraffine foundation. The result was that the comb built from the foundation "caved in" on hot days, and we had damages to pay. It is sufficient to state that paraffine in any mixture for bee-hives was condemned by A. I. R., and has been looked on with suspicion ever since by the junior members of the firm. But the dental trade calls for paraffine mixtures, and, if I am correct, the wholesalers of dental goods sell it for just what it is, and therefore it is a legitimate article of manufacture.

In our experiments in making dental wax, we have been impressed more and more with the great superiority of beeswax over any other wax known. The product from the hive is less affected by varying temperature, is much more ductile, and will stand greater strains. Paraffine and its mixtures, on the other hand, have a disagreeable fashion of crumbling up. If the atmosphere is a little cool, thin sheets will almost snap into pieces. If it is a little warm, like a hot day, it will fairly tumble all over itself. These qualities in dental work may possibly make them desirable; but I am very certain (more so than I have ever been before) that pure beeswax is the *only* article in the way of foundation that ought to be put into a bee-hive.

PARAFFINE SURFACES IN BEE-HIVES; DANZENBAKER HIVE AND SYSTEM.

Mr. Francis Danzenbaker, of Washington, D. C., the one who called our attention to the dovetailed hive corner, and the one who invented the Danzenbaker hive and system, is with us again for a few days. He is a strong advocate of closed-end frames, tall sections, 4x5, such sections being notched at the corners, as was illustrated in Gleanings some time last spring. When he came here a couple of years ago he advocated the use of paraffine paper, the same crowded down close upon the tops of the sections. Bees disliked paraffine he said; and the paper being impervious to the action of moisture or air, it retained the warmth of the brood-nest; and as its surface was paraffined, the bees were not inclined to deposit propolis to it.*

Indeed, he exhibited sections that were shown at the Michigan State Fair, and won first prize, that had *not been scraped at all*, so perfectly had the paraffined paper done its work. His plan of using the paper is to lay the sheet on top of the sections, and then over it a quilt or folds of other paper and over all the hive cover. This, he explains, makes a super tight and warm; and as the surface of the paper is a little greasy, the bees are not inclined to deposit propolis against it.

He has used paraffined paper for separators, but has abandoned the paper for that purpose, and is experimenting with wood coated with paraffine instead.

Mr. Geo. E. Hilton, a bee-keeper whose opinion I value highly, I understand is going to use the paraffine on all his supers another season, particularly because it saves so much time in scraping the sections. The use of paraffined paper as above specified has been incorporated, I understand, in a patent.

As the years go by I feel sure that Mr. Danzenbaker will be accorded the honor of giving the bee-keeping world a number of valuable ideas and inventions. He is an enthusiast upon the subject of hive-construction, and has been studying that matter, and carefully testing various hives for a period of twenty years or more, and he now feels that he has finally reached the *ne plus ultra* in bee-hives. He has succeeded in devising and combining very many valuable features in his hive; and we like it so well that we have arranged with Mr. Danzen-

* Propolis is gathered to seal the super air-tight. If this is done for them with paraffine paper Mr. D. says the bees begin work at once in the supers, which is not the case when they are not tight. Then the bees have to stop to gather and chink in propolis.

baker to supply it to our trade along with our other hives.

POISONOUS HONEY; THE UNITED STATES DEPARTMENT OF AGRICULTURE INVESTIGATING THE SUBJECT.

On the 17th of last month we received an inquiry from the U. S. Department of Agriculture, Division of Botany, asking for information regarding cases of alleged poisoning from honey, and desiring to know particularly whether we had any thing more to offer in regard to the cases mentioned in Gleanings for July and August, 1885. We replied that we could give no new light regarding them, but added that very recently Prof. Cook, of Pomona College, Claremont, Cal., in a recent article in the *American Bee Journal*, took the ground that there was no poisonous honey from any plant, and that since then communications had come in, both to the *American Bee Journal*, Gleanings, and to the *Southland Queen*, producing evidence that in some cases at least persons had been poisoned; and, moreover, that in our own opinion there could be no doubt, judging by reports we had received for several years back, that honey from poisonous plants is often dangerously poisonous. I am glad to know that the Department of Agriculture is investigating this subject, and hope that those of our readers who may be in possession of any information on the subject will write to V. K. Chesnut, assistant of the Division of Botany in the Department of Agriculture, Washington, D. C.

In the mean time I desire to call attention to a valuable article from the pen of Dr. W. M. Stell, of Jesus Maria, Mexico, in the *Southland Queen*, giving the result of some of his personal investigations. The mountain laurel grows profusely in his vicinity, and he has observed that goats eat of it ravenously: but that burros and mules will not touch it. Upon his asking a herder of the goats as to whether this mountain laurel was poisonous to the animals, the herder replied that it was not; that they often drove the goats to them. Upon asking the herder whether he had ever taken any inwardly himself, he replied that he had; but that it produced pain and vomiting.

To test the matter further, the doctor made a tincture of the leaves and then mixed one ounce of this decoction with 8 ounces of diluted honey. This was fed to the bees: they took it readily, and stored it in the combs, apparently without any bad effects whatever. The next morning after feeding, with a small suction-dropper he extracted about 2 ounces of the mixture he had fed, and placed it in a glass graduate. Half an ounce was then eaten by himself, and the rest, an ounce and a half, by a Mexican boy, and this is what he says:

Now for the direct physiological effect on man and boy. About one-half hour after swallowing this honey I suddenly became giddy, with a slight loss of sight; felt as if being whirled around. I immediately introduced my finger as far down the throat as possible, and vomited "sweet laurels" up, which relieved me instantly. The dose with the boy stayed with him all right for one hour.

I will state right here, dear reader, the Almighty being my helper, I will never try another experiment on any human again, and advise you all to do likewise. Just listen to these honey symptoms:

The boy fell with a violent convulsion; hard, contracted stomach, cold hands and feet, profuse perspiration, mouth tightly closed, eyes opened and rolled back, pupils dilated, face flushed, twitching of lower limbs, and great difficulty of breathing, pulse full, only 50 per minute, but strong. Being more than satisfied, and greatly alarmed with these symptoms, two one-tenth grains of apomorphia were administered hypodermically, in the left biceps, which promptly produced an emetic effect that relaxed all muscular contraction. After a good vomit he sat up, complaining of pain in the stomach and back of neck. Two ounces of castor-oil were administered, which operated in about two hours, bringing away a great deal of honey in the vomits also. The boy was quite broken up and unwell for a week, but is now bright as a dollar, as though nothing ever happened.

I hope, after this little experiment, those who are skeptical on laurel honey being poisonous, will only try a small bit on themselves, and know, personally, how it feels. I will assure you that a few of the above symptoms will convince and put you straight. Some may say, Why does it not produce such effects on the bee? Well, this I do not know, nor does any one else. It is true that, when the nectar is gathered from flowers, it undergoes a slight peculiar physiological change, that strains, refines, and reduces the amount of acid. This prevents fermentation, and conserves preservation, but does not alter its natural constituents: if it did, all honey would look and taste alike.

It seems to me it is a great deal safer to take the ground that honey from mountain laurel and like poisonous plants may be and probably is poisonous to human beings. Dr. Stell winds up his valuable article as follows:

I believe it is the honest duty of all bee-keepers to be more studious about the poisonous plants, and ascertain from which source the bees gather the honey. Jasmine, digitalis, oleander, nightshade, etc., are all dangerous and poisonous garden-plants which should be substituted by others more profitable and as beautiful. I hardly think bees will visit such poisonous plants unless compelled to do so by absence of all others, and during a sudden check in the honey-flow.

MAILING QUEENS ACROSS THE OCEAN PRACTICALLY A SUCCESS.

At last we are able to announce that queens can now be mailed safely from Italy to the United States. Until quite recently Italian queens came by *express* in little hives or shipping boxes containing a couple of combs about 3 x 4 inches, and perhaps a couple of hundred bees. This made it necessary to get a shipment of not less than 50 in order to get out whole; for the express on a smaller number would be about the same. Besides the increased expense by express was the inconvenience of being obliged to make room in our apiary for 50 imported queens all in one day. Plan for it as best we could, it would disarrange to a considerable extent our queen-rearing operations. Now this nuisance is, I hope, all done away with, since queens can now come in lots of three or four by mail as fast as we need them.

For a couple of years back we have forwarded at various times our export cages, already provisioned, to our breeder in Italy, with in-

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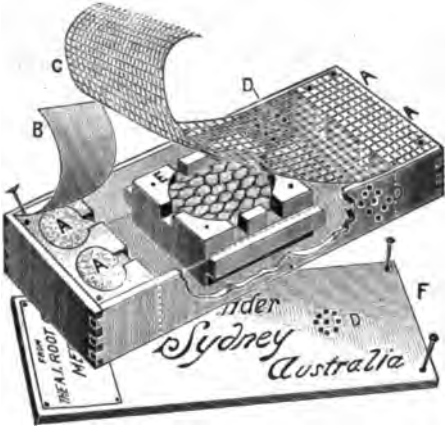
structions to put queens in and remail them to us. But the queens on arrival, if alive, were sickly-looking specimens, and it seemed as if mailing from Italy were a failure. Finally we observed that *we* could send queens in those same cages to foreign countries safely. Investigation showed that our queen-breeder in Italy put too many bees in the cages, so that the bees either suffocated or used all the food, and, as a consequence, starved.

About six weeks ago we prepared another set of Manum cages (the same as was illustrated on page 774 of GLEANINGS for Oct. 15, 1895), and sent six to one breeder and twelve to another, in Italy. The cages were prepared exactly as had been done before; but this time instructions were sent to put in not over thirty-five bees with the queen. A few days ago the first six arrived, every queen alive and in good order, and a few days later the remaining twelve came in equally good order. Mr. Spafford, our apiarist, reports that these queens appeared fresher and nicer than those that have heretofore come in the large cumbersome express packages.



THE MANUM CAGE.

As it may not be convenient to refer to the cut of the Manum cage above referred to, we reproduce it here.

The holes in the end contain the ordinary queen-cage candy; the center compartment, a bit of comb honey secured to its place by melted wax. The honey gives the bees the necessary water or liquid, so that the candy may be better assimilated. There is usually not sufficient honey in the ordinary Good candy to answer for long distances. Since using the little chunk of honey, our success in mailing to Australia has been much better. But one essential is in using the right number of bees.

BYRON WALKER; WILLOW-HERB HONEY; SELLING HONEY TO THE TRADE DIRECT.

We have just had a very pleasant call from Mr. Byron Walker, of Evart, Mich., but who is at the present time in Chicago marketing his crop of honey. Last year he was fortunate enough during the dry season to secure 30,000 lbs. This year he has again produced the same amount, chiefly, as I understand, from basswood and willow-herb. The latter is a very fine and superior honey—first-class in every respect, and taking front rank right along by the side of the best clover.

One crop comes on comparatively early in the season, and another one from the same plant follows later. The earlier bloom comes from the growth of the previous season, and the second growth from the seeds of that season, on grounds that have been burned over. So far as I know, willow-herb grows only in certain parts of Michigan and Wisconsin. Its best growth seems to be over ground just previously devastated by fire.

Mr. Walker is one of those bee-keepers who secure a crop of honey *every season*. If there is no prospect of a yield in one locality he finds one where there is, and takes his bees there. He has practiced migratory bee-keeping extensively, and so successfully that I believe he has the reputation of securing the largest crops of honey of any bee-keeper in Michigan.

Not content with securing the largest crop of honey, he believes in getting the highest prices. In order to do this, after the honey season he goes to the markets himself with his honey, and personally sees to disposing of it to the trade direct. He rents space in the heart of Chicago, hires help, and puts his honey in large and small packages to suit the trade. With a horse and wagon he delivers it to the grocery trade.

At first he had difficulty in "breaking the ice." The grocers would show him "other stuff" they could buy cheaper; but by getting them to *taste* his honey he would convince them that his goods were *real honey* and worth more. He has no trouble in holding trade after he once "breaks the ice."

Mr. Walker called down at Medina while on a visit to see Dr. J. M. Lewis, of Cleveland. He has been a sort of invalid for a year or so back, and felt the need of something to build him up, and finally decided to go to Cleveland to take the treatment pure and simple. He has now begun, and I shall expect to hear, *if he sticks to it*, in a year or so, that he has become strong and robust, like the rest of us. Said I, "It is kind o' tough to be put on beef diet, and to be barred from the use of sweets of every kind, including honey, and still be in the honey business."

"That is true," said Mr. Walker, with a smile; "but, in spite of that, since Monday I have sold 8000 lbs. of honey;" and his visit here was made on Thursday and Friday. He had not sold any to us, and so he must have sold it all inside of two or three days.

THE PRESENT RULES OF GRADING.

Mr. Walker didn't like our rules of grading,

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such as we have at the head of our Honey Column, a little bit. They draw the lines too fine. He at one time advertised to pay 25 cts. per pound for the "fancy," said honey to conform exactly to the requirements laid down. He never got a pound. The fact was, all of the grades were too strict over unimportant details. For instance, both the "fancy" and the "No. 1" specify that "both the wood and comb should be unsoiled by travel-stain or otherwise." If a section was perfect as to sealing, it was quite likely to have some discoloration, for the reason that perfect sealing implies delay on the hive in order that the bees might perfect the sealing. It is then that a slight discoloration is almost sure to be present. On the other hand, a section not up to the requirements as to capping might be free from discoloration. A slight discoloration, in his opinion, did not disqualify a section. The rules needed revising. He didn't believe that producers or commission men could or did conform to these rules.

I am quite willing to admit that there is truth in what Mr. Walker says, and I should like to hear from our readers.

THE NEW WEED FOUNDATION.

In talking about the matter of foundation, Mr. Walker was very enthusiastic in praise of the new Weed process, as it was so much tougher, and so much more readily worked by the bees. Indeed, medium brood of the new process was taking the place of the heavy brood of the old, in his yards, and in many cases he had not found it necessary to wire at all. As long as he can get the new process, he will not bother with the old dipped wax.

He was very much pleased with the new Cornell smoker. The malleable-iron legs and hinged top he considers as both very valuable features.

OUR HOMES.

Let your moderation be known to all men.—PHIL. 4:5.

I have been learning some lessons of late. You know how much I have made this matter of *health* a study and a subject of prayer. I have been continually asking God for wisdom, especially where there seems to be so much superstition and nonsense connected with this matter of sickness and disease. I have been asking, as you know, that God would open some way whereby I might partake of fruits and vegetables which have been provided by a kind Providence in such abundance during this past exceedingly fruitful season. You *know* I have not asked alone for self, nor simply because *I* wanted the pleasure myself of enjoying the beautiful apples, peaches, and other fruits. I have asked for wisdom that I might guide wisely those who come to me with their different ailments; and let me say that all along this line I have become more and more satisfied that nearly all the ills that flesh is heir to in the way of sickness and disease come about directly or indirectly through the water we drink and the food we eat. Quite a few intelligent writers on health have suggested that, when one is traveling, and has learned by past experience the danger of drinking water from different sources, he can easily get along without drinking water at all by the use of juicy fruits; and it has been suggested that nature has provided all the drinking-water we need under ordinary circumstances through the medium of juicy fruits that can be had at most seasons of the year; that is, a person in ordinary health can, if need be, substitute fruit juices in place of the water from wells of different localities (at meal time he can readily use boiled water). Cistern or rain water of the requisite purity can not be readily obtained in many localities; that is, no proper provision has been made for preserving the water, especially in hot climates. Now, this matter of using fruits to such an extent would not accord very well with the lean-meat treatment. How does this come? Well, in the first place nobody is expected to take up the lean-meat diet unless his health is failing in some way. In the second place, a great many people can eat fruit at the same time they are on the lean-meat diet, if used *at proper times* and in proper quantities. I wish to put a special emphasis on the last of those statements. And this brings me to the subject of our talk—moderation.

I have been greatly pleased to find, during the past summer, that I could eat certain kinds of fruit, not only with impunity, but that it does me good, and really assists digestion, if taken at the proper time of day. My remarks are now perhaps chiefly for older people, or those who have impaired digestion. Children—the greater part of them—eat fruit at all times and under all circumstances, and many of them in almost unlimited quantities, without harm. Most of us can remember the time when we went out to the orchard and ate all the apples we wanted, whenever we took a notion; but as we grow older I think the greater part of us find it behooves us to use moderation.

I have found during the past summer that certain kinds of fruit at certain times have not only improved my digestion, but given me buoyancy and strength of spirits. I have told you about that harvest-apple tree. And, by the way, somebody at the center of our government has been reading what I have said, and the United States Pomologist, at Washington, has been kind enough to inquire about those that grow in our own dooryard. See another part of this journal. Well, as soon as those harvest apples near our door commenced getting real ripe and mellow, I had a conviction that I could take them right from the tree and eat them without harm. I found this to be true providing I ate them during the middle of the forenoon, say about the time I have been in the habit of taking my hot water. I do not care for them particularly at breakfast; but about two hours afterward I become "apple-hungry;" and it has been a source of most keen enjoyment for months past to go right to an apple-tree, select a nice smooth apple that is just as mellow as it can be without being over-ripe. I sit down and eat this at my leisure, being careful to remove all peeling with a sharp knife, and taking out the core and every thing that may prove injurious or indigestible. Then my apple is eaten slowly, and chewed until it is almost like a baked apple. In this way I have decided a nice apple to be more delicious to me than peaches, pears, or even strawberries. I can *usually* eat two good-sized apples between nine and ten in the morning; but I think one pretty fair apple is a little safer. If I am going off on a wheelride I can eat as many as I

choose, and will be all right; but after having made many careful experiments I am convinced that safety lies along the line of moderation. Don't overload and clog the machinery of digestion just because God's gifts are delicious. Now in regard to vegetables:

I have been having an excellent appetite all summer. I never sit down to a meal without a feeling of thankfulness to God. If the circumstances are such that I am not prepared to thank him out loud I thank him in my heart. Well, with this good appetite there is great danger of overeating. Perhaps I should be ashamed to say it, but I think I might as well *confess* that it is quite a little cross for me to break right square off when I do not feel half satisfied, especially when others at the table keep right on eating without seeming to be obliged to exercise any control over their cravings at all. One day we had a new muskmelon and a new watermelon on the table for dinner. There were also some new kinds of peas and lima beans, if I am correct. I wanted to taste of all of those things, but I feared the consequences. I thought I would try an experiment. By the way, when I overdo this matter of cutting off, the only trouble is I get faint and nervous before the next meal. But it is not very often that I make a mistake in that way. Well, on the day in question I first ate half or less than half of my usual quantity of meat. Then I ate a very few beans and a few peas, a small piece of bread and butter, and some apple-sauce; one small slice of watermelon and ditto of muskmelon. I was hungry for all these things, and had eaten perhaps half the usual quantity. But I was seeking for *truth*, and so I broke away from the temptation to even taste *any thing* more, and carefully watched Dame Nature during the afternoon. I was greatly rejoiced to find that at supper time I was not as weak and nervous as usual. I had not lost strength, but could have worked half an hour longer or more if need be; neither had I any unpleasant reports from the regions of digestion and assimilation. Every thing went on as quietly as if I had eaten only meat. The whole secret lay in eating just enough and no more, and letting Nature have just what she could handle nicely without being overloaded or clogged. Let me now give you a lesson on the other side.

This (Oct. 1) is the fourth day it has been raining almost continuously. I have been confined to the office pretty much all the time. I have not ridden my wheel, and scarcely been out in the gardens. At such times I have to be more careful of what I eat. My breakfast and dinner yesterday were pretty moderate because I had certain warnings that there was danger ahead. The consequence was, last evening I was very faint long before five o'clock. It seemed as if I could hardly wait until all the members of the family were gathered at the table (at our home we always ask a blessing first, and therefore no one present commences eating before all the rest are ready). I ate my usual quantity of beefsteak; but at the same time there was a craving for something else, I didn't just know what. I finally spied a dish of milk toast. Now, I had not tasted of a bit of milk, either raw or scalded, for a month or two previously. Several times it has made bad work. Last night, however, it seemed as if that milk and toast would hit the spot; and a trial seemed to accord with my feelings to such an extent that I was helped to toast the second time. I went to bed feeling all right, and was rejoicing to think I had got so far along that I could eat even milk with impunity. Just before the clock struck twelve I was awakened by certain well-known unpleasant feelings. Before I got to sleep again I heard the clock strike twelve, half-past twelve, one, and half-past one. During this time I had vomited *five* times. Mrs. Root asked me what it could have been I had eaten. She could hardly believe me when I said it was the milk toast. But there was no mistaking it; and part of the milk and toast was just about as I swallowed it at supper time. Certain other parts, however, that seemed to be at the "bottom" of the mischief, were bitter and acrid. It fairly scalded my throat and mouth as it came up. It seemed to have turned into sharp vinegar and wormwood; and when I came to taste and smell the stuff I did not wonder a bit that I felt *sick*.* Now, for many years milk and toast was the safest thing I could eat. Dr. Lewis told me, you may remember, that I had lived on milk so many years I had got what they called milk dyspepsia; and he said that, while milk is excellent food for most people, he did not believe I should

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* I want to tell you that, when I was half through my supper the night before, I said to Mrs. Root something like this: "As I have had just a little bit of my peculiar headache this afternoon, I shouldn't wonder if it would be better for me to stop off right here and not eat another bit; but I am so very hungry, it would be a good deal of a cross to do so." And this reminds me that Dr. Lewis said that people with impaired digestion have at times an unnatural or morbid craving for food; and this craving is almost on a par with that which the intemperate man feels for liquor. He said it would seem almost impossible at times to withstand the temptation. Nevertheless, one must conquer it. It would ill become one who professes to be a Christian, to censure a drinking-man while at the same time he himself did not control his own appetite in eating.

By the way, the conviction again and again forces itself upon me that the workings of the human system are very much like that of the interior of a bee-hive. I have told you in the A B C book of my experiments in the way of introducing moldy and moth-eaten combs into a strong colony of Italians. They will, during a good honey-flow, cleanse it and make it sweet, pure, and clean, in an hour or two. When I first discovered this (by putting in one comb at a time) I was so astonished that I could hardly believe my eyes—that is, that they could do such an amount of cleansing in so short a time. Then I gave the colony two or three combs to clean out and fix up. It was done almost as quickly; at last, I removed all the combs from the hive but two or three, and replaced them with combs that had become moldy and practically spoiled on account of some leaky hive-covers. The bees finally decided that I was carrying things too far, and so they swarmed out, thinking they could find an empty hive, and fill it with comb cheaper than to put up with such indignities. Well, are not our digestive organs much like the bees? They do not "swarm out," but they decide, when there is an *overflow* of unhealthful rubbish, that it *must* be got rid of, and that speedily, in one of two ways. A wonderful thought comes to me right here—who *does* this deciding? It was not myself, for I was sound asleep. *I* did not direct the "dumping" process, for I emphatically objected. In fact, I was a silent, suffering victim. As I knelt on my knees, with tears in my eyes and anguish in my soul, no one could say that *I* was "bossing things." Let us now look at the bees. *Who* decided that it was the best thing to do to swarm out and desert the filthy combs? It was not the *queen*, for she is perhaps as much or *more* the servant of the workers as any one of them. Did the workers hold a council? If so, how did they communicate one with another? Physiologists tell us there is something that takes charge of the economy of the human system that is entirely separate from the individual himself. There is a something or somebody that decides what is best to be done, and proceeds to do it—a sort of involuntary action of the injured organs and processes of the system. It keeps the lungs breathing, the heart beating, directs digestion, defends and protects the life of the person, and without his knowing any thing about it.

I will give thanks unto thee; for I am fearfully and wonderfully made.—Ps. 139:14.

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ever get so I could use it very much. Well, I have had half a dozen experiences since he told me that, with about the same result as above. He said if I used milk at all I would have to go out to the stable or into the pasture where the cows were being milked, and drink it just as soon as drawn from the cow. He did not say any thing about microbes and fermentation; but, dear friends, I am afraid it is a fact that fermentation commences in a very few hours—sometimes inside of an hour—with many things of this kind. During hot weather a change can be detected in sweet cider within an hour after it has been left exposed to the open air. I have not tried milk right from the cow of late, but I know of other people who have. They can take it so when it can be taken in no other way. You see, this is like going to the apple-tree and taking a perfectly ripe apple right off from the limbs. An apple that is very carefully picked and laid away without bruising may be as wholesome weeks or months afterward; but I doubt it. I think I can eat apples picked right from the trees with more safety than one that has been gathered several days. I have satisfied myself that an apple that has been lying on the ground for some time is not as wholesome for me, especially if it be bruised or has commenced to decay.

I suppose you know, of course, how much has been said in regard to sterilized milk and sterilized honey and other articles of food. And this brings us to the matter of making things more wholesome by cooking. When jelly or preserves begin to spoil, the good housewife scalds them, and then they are good for quite a long time, especially if the weather is cold. By the agency of heat we may destroy the germs of fermentation, and make food wholesome. Chicago is just now suffering from a terrible epidemic of typhoid fever. By some means the sewage from the city has got into the lake, so as to contaminate the water; and physicians are urging people to boil all their drinking-water. The reason that the fever still rages is because people absolutely refuse to obey the physicians. This thing has been enacted again and again in our great cities. It seems to be impossible to get everybody to obey when the matter is explained to them, or else they forget about it, and then they "go dead" as a consequence of their stupidity or forgetfulness.

You know how much has been said about drinking hot water; and, by the way, one of the best remedies for the green cabbage-worm is to scald them with water hot enough to kill the worms but not hot enough to injure the plants. The plants will stand a great many degrees higher temperature than the soft worms. Now, when your stomach gets into a state of fermentation you can kill the microbes—that is, if you choose to call them microbes—by the use of hot water. You may say that water hot enough to neutralize fermentation would scald the stomach. Not so. With a little practice you can learn to drink water safely that would scald your hands or even your lips if you let it touch them. Sip it slowly just as hot as you can bear it. Keep doing this until you have taken a pint, more or less, or until the contents of the stomach are so hot that the beer brewery down there has quit business. I once asked Dr. Salisbury if beer was not a good thing as a tonic for some people in poor health. He replied something like this: "Why, Mr. Root, when one has a beer-brewery on a small scale already in his stomach and intestines, how are we going to help the matter by pouring down *more* beer? The alcohol that is contained in the beer is by no means the only harmful part of it. Where one has sour stomach, and his food is rotting in the intestines, instead of nourishing the body, the very worst thing in the world he can take into such a digestive apparatus is beer. In fact, beer often starts this form of dyspepsia." In place of the beer, take hot water, as I have described, at the proper time between your meals, and you wash and scald out the whole apparatus as a skillful housewife would scald out utensils that had contained milk. I suppose you know there have been terrible troubles in the milk business just because certain venders neglect to scald properly and cleanse their milk-cans. And, by the way, this hot water that has been such a benefit to my health has now become the most delicious drink to me of any to be found in the world. I like it better than any tea or coffee or any similar concoction; better than cider, wine, beer, or ale; and I have during my lifetime—at least years ago—known about as well as most of you what it is to have a craving for beer. Thank God, I now prefer pure hot water; or when I feel that I need something in the way of acids, fruits, and the like, I like a nice ripe apple, right off from the tree, as well as any other fruit in the world. My friends, if your digestion is poor, be careful to eat fresh fruits right from the trees or bushes. Do not take any chances on any thing that has the least bit of a start in the way of fermentation. Go out into the orchard and help yourself when you are very hungry for fruit.

But above all things make use of all of these precious gifts in *moderation*. The greatest enjoyment that can be secured from any of these wonderful blessings from a kind and loving Father is found in using them in moderation. Because a thing is good, and because the animal part of your organization calls for more, act the part of a wise man and stop on the safe side. The Bible is full of the most precious promises; but none of them are for the glutton or the selfish man. It is right and proper for us to enjoy these things; but it is a terrible thing to let appetite and our fleshly cravings run away from good sense. A locomotive needs a wise and skillful engineer. Without him it is good for nothing except as an instrument of destruction. So with the human make-up. We are created in God's own image, if we let sense and reason and moderation reign; but when we fail, and let *self* reign, then we are not in God's image at all. On the contrary, we are an image of the Devil himself; and his entire work is all along in the line of selfishness and selfish gratification. Why, just think of it. When Satan gets hold of a man this man will sometimes voluntarily barter home, reputation, and every thing he has in this world, for the privilege of gratifying a low passion for just *one single minute*. It seems astounding, and it seems as if it could not be: but yet these things come up every little while to startle whole communities.

In the neighboring city of Akron a young man lies in jail awaiting his removal to Columbus for execution; for in this State all executions take place in the Ohio Penitentiary. By his own confession he planned murdering an entire family simply that he might succeed in gratifying a passion that he had been nourishing and meditating upon for weeks and months. He did not even consider how he was to evade justice, unless he planned a suicide after he had accomplished the thing his imagination so long dwelt on. But for an accident he might have succeeded in his plan. As it was, he murdered an old farmer and his wife, and their hired man, and came very near killing two daughters of the murdered parents. I dislike to mention such awful crimes; but there may be a wholesome lesson in it if it reminds us of what Satan

may do when he once gets hold of one, and gains control of the imagination.

What has all this to do with keeping control over the appetite, or cutting short your dinner when you are only half through? Why, one is the beginning of the other. The man who has found by experience that his welfare depends upon moderation in eating, and who has the manhood to say to appetite, "Thus far and no farther," *this* man has taken the first step toward being a *Christian*. The one who says he is going to have enough to eat, no matter what the doctor says, or anybody else, is likely to land in a drunkard's grave or the prison-cell, with the gallows ahead of him. Let me close by repeating a few Bible promises that strike in line with what I have been teaching:

To him that overcometh will I grant to sit with me in my throne, even as I also overcame, and am set down with my Father in his throne.—Rev. 3:21.

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.—I. Cor. 2:9.

THE NORTH AMERICAN BEE-KEEPERS' CONVENTION AT LINCOLN, NEB., OCT. 7 AND 8.

There is a good deal said about railroad companies and railroad officials not being accommodating; but I have not found it so when they are approached in the right way, and when my requests have been reasonable. In making our trip to Lincoln we left Medina on Monday morning, Oct. 5, and should have been home Saturday morning were it not that one of the trains from Chicago was over an hour late. As it was, I reached home by Saturday noon by using my wheel for the last 25 miles. We are very much indebted to Mr. P. S. Eustis, General Passenger Agent of the Chicago, Burlington & Quincy Railroad, for courtesies extended in making the trip so quickly and pleasantly; and, by the way, the whole C., B. & Q. R. R. seems to be under excellent management all the way through. The road is so smooth, and the coaches are in such good condition, that we made the whole distance—something like 2000 miles—without feeling tired at all. But I shall have to defer till our next issue a fuller account of our trip on the cars.

There has always been more or less inconvenience at our national conventions from the fact that few of those who attended the year before are present at the convention. Our country is so large that it has been found advisable to move the convention about from place to place in order to give all the bee-keepers a chance to attend, so that each gathering, as a matter of course, is for the most part made up of those who have rarely or never attended before. On this occasion the gathering was made pleasant by finding at least a few of the veterans. From Ohio we had Dr. A. B. Mason, Ernest, and myself; from Illinois, Dr. C. C. Miller and our good friend York, of the *American Bee Journal*. From Missouri we had Rev. E. T. Abbott and his good wife, besides quite a few other friends we got acquainted with at St. Joseph, Mo., two years ago. From Nebraska we had friends L. D. Stilson and Hon. E. Whitcomb; also Mrs. J. N. Heater, of Columbus, Neb. The State University at Lincoln gave us some excellent help in the way of talks from Prof. Bruner, on entomology, and Prof. Charles E. Bessy on botany—its connection with bee culture. Eugene Secor, of Iowa, contributed not a little by his wonderful poetic talent.

The meeting was opened by chapel exercises in a beautiful room in the University building, with from 600 to 800 of the students present.

The first paper was on the importance of water in the apiary, by friend Whitcomb. It was to the effect that much of our spring dwindling is caused by bees being obliged to come out at untimely seasons in pursuit of water; and still further that, when they find the water, it is generally icy cold. The speaker thought bees were lost by going quite a distance from the hives after water, and thereby being exposed unnecessarily to chilling winds. On the western prairies perhaps this is more often the case than here in Ohio, where water is almost always to be found near by. Friend W. advised providing water in fruit-jars inverted on a grooved board, as described in the A B C book. If this arrangement is placed in the sun, the glass jar acts like a miniature greenhouse, keeping the water several degrees warmer than the surrounding temperature.

"The wild Bees of Nebraska," by the entomologist, Prof. Bruner, was in regard to bumble-bees and other smaller bees that visit the flowers. I for one was greatly astonished to learn that there are something like 200 different kinds of bees in our country, not counting the honey-bee; and in addition to this there are about 60 kinds of bumble-bees all together. Ten different varieties of bumble-bees are found in Nebraska. Some of the wild bees are quite small—so small, indeed, that they might be called gnats, or even smaller than that. Their office in life seems to be to insure the fertilization of the different varieties of plants. The plants can not well get along without these special bees, and the bees can not very well get along without these special plants. I gathered from the talk that not all of these have stings. Prof. B. told us, however, to look out about meddling with any sort of insect having *rings* about its body. Wasps, hornets, and yellow-jackets belong to still another family. These subsist mainly on animal food—other insects such as spiders, etc.; but some of them—hornets and yellow-jackets, for instance—have a sweet tooth for honey. None of these wild bees gather honey and store it up except the bumble-bees; and none of them, not even the bumble-bees, winter in clusters like the honey-bee. They all get through the winter by a sort of hibernation. Honey-bees do not hibernate—at least, not in the strict sense of the term. Hibernation belongs to insects and animals that lay up a sufficient supply of food in their own bodies, and then become torpid; and in this state they are not dependent upon being inside of a cluster of others of their own kind as are the honey-bees

Prof. Bessy's excellent talk on botany as related to bees was a sort of supplement to the talk on entomology. He likened the flower to a mouse-trap. We put a piece of cheese in the trap to entice the mice; the trap is so arranged that the mouse must pass the danger-line in order to get the bait. Dame Nature baits her floral trap with a minute drop of honey. She, too, places the bait beyond a certain object to be attained. The bee can not get the honey without brushing the pollen; and thus Nature, by a baited trap, accomplishes her object of fertilization. Besides the sweet nectar, Nature hangs out a flag—a gaudily colored flag—to attract the bee; and in order to make things *doubly* sure she also equips the plant with an apparatus for sending out a beautiful and enticing aroma—the perfume of the flowers. The

perfume and the gaudy colors and the drop of nectar are all to the intent and purpose of getting the swift-winged bee to accomplish this most vital and important work in the economy of the plant.

I am very much in favor of "experience-meetings," and some way or other a little experience-meeting got in just along here. T. K. Delong, of Angus, Neb., reported 450 lbs. of honey during the past season, from a single colony placed on spring scales. He brought a sample of the honey, and gave it as his opinion that this large amount came principally from heartsease. Some of the experts, however, who tasted it, pronounced it mainly white clover. He had only 20 colonies in his apiary, and only one other of the 20 gave an equal amount.

I shall not attempt a review of the papers that were read, for you can find them all in the *American Bee Journal*. If you do not take it regularly it will certainly pay you to send for the issues containing the papers and reports of this convention. There were papers from Mrs. Heater, Prof. Cook, L. D. Stilson, E. T. Abbott, Geo. W. York, and others.

The address of welcome was to have been made by the Governor of the State; but, he not being present, it was given by Lieutenant-governor Moore, followed by one in behalf of the State University, from Chancellor McLean. Hon. Eugene Secor, of Iowa, responded by a poem delivered offhand, which will be given in full in our next issue. It reminded me strongly of some of the finest productions of Will Carlton; and I hope the world at large may think as I do about it, and that we may soon have a book of poems from friend Secor; and I do not believe it is best to wait until he dies before we discover that, in point of merit, we have few his equal, either in the past or present.

□ I must confess that I have not read all that has been said in our bee-journals for some time past about the matter of union and amalgamation; but it was so well presented by different ones at our convention that I believe I may say truly there was hardly a dissenting voice when it was proposed to take such steps as we were able to take then and there toward uniting the Bee-keepers' Union and the North American. For some time past, as our readers may be aware, nothing has been done in the way of defending our bee-keepers, although quite a sum of money is now stored up belonging to the Union, waiting for an occasion to use it.

Dishonest or snide commission men are becoming so bold that the police are taking them in hand; and yet the bee-keepers of America are doing comparatively nothing unless it is to expose them through the bee-journals. Away out in Nebraska, corn is down or has been down to 10 or 15 cts. a bushel. Glucose has come down correspondingly, and the temptation to adulterate honey and other sweets is greater than ever before. These dishonest swindlers are pushing ahead almost without rebuke. With a live organization of bee-keepers with only a little money—that is, a little comparatively, from each one—say a dollar a year, more or less, we might be a terror to evil-doers; and, God helping us, we mean to be a terror.

□ Now permit me to say briefly that our association has done all it can do. We have framed a constitution that was accepted unanimously at Lincoln; and now we only await the concurrence of the different members of the Bee-keepers' Union. I think the actual members of this Union are now about 200. The money in the treasury is between $600 and $700.

The next place of meeting is to be Buffalo, N. Y. The time is not yet determined. Our good friend York, of the *American Bee Journal*, is to be President, and Dr. A. B. Mason Secretary. These two have the matter in hand, and know what was done at Lincoln—at least they ought to know, for they, with the best men of the convention to aid them, between sessions were busily engaged framing a constitution. It was afterward submitted article by article, and in some cases sentence by sentence, for the approval of the whole convention, and finally with one accord adopted. This will be published in our next.

The actual number of bee-keepers present, I believe, was between 50 and 75. Those of us who were from out of the State were most courteously—nay, I might say royally—entertained free of charge at the hotels. If there is a pleasanter or more comfortable hotel to be found in Lincoln or in any other city in this whole United States than the Lindell, where we stopped, it has not been my good fortune to find it.

Besides our excellent entertainment we were taken all over the city on one of the electric-car lines; and finally Chancellor McLean marched us through the wonderful buildings of the Nebraska State University. We saw the students actually at work, and finished up by taking a hasty view of their beautiful library building and contents.

Lincoln is a most beautiful city; and in point of education the Nebraska people seem to be fully abreast with the times and the *world*, even if they do sell corn at a price so low that it is cheaper to burn it for fuel than to buy coal. Long live Nebraska and the good friends who entertained us so handsomely!

□ I do not want to close without making mention of the good women who brightened our meeting and cheered our deliberations by their presence; yes, and two of them brought their babies. Nebraska, we were told, is about 500 miles long and 200 wide—big enough to plant some whole European kingdoms in, and have room enough then for quite a few of our Eastern States to be chucked in one of the corners. The soil is sufficiently fertile to supply the world with both corn and sugar; and if there is any thing else the world would like after that is done, I think the Nebraskans would be willing to turn in with a will to fill the contract. I saw a few saloons in some parts of the city; but I do not believe they are doing a thriving business. The schools and theological seminaries in the vicinity are not conducive to a good trade in intoxicants. May God help Nebraska in the work she is trying to do!

THE APPLES IN OUR DOORYARD, AND CALLING APPLES BY THEIR RIGHT NAMES.

We were agreeably surprised, shortly after having mentioned our beautiful apples in GLEANINGS, to receive the following:

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF POMOLOGY,
WASHINGTON, D. C.

Mr. A. I. Root:—Can you send us a few specimens by mail of the apple "Queen Anne," mentioned in the last number of GLEANINGS? We are unacquainted with this variety unless it should prove to be Lowell or Mother, of which *Queen Anne* is a recognized synonym. A mailing-box and frank have been mailed you which will bring the specimens free of postage. WM. A. TAYLOR,
Sept. 3. *Acting Pomologist.*

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We at once gathered specimens of the Queen Anne on our own grounds, and also got some of a neighbor that were a little different, but which he declared were the real Queen Anne, and I mailed them as above. Below is their reply:

Mr. A. I. Root:—Replying to your favor of Sept. 8, I would state that neither of the varieties sent as Queen Anne is correctly named. Queen Anne is the synonym of *Lowell*, a variety having a very oily skin, and on that account is often called Greasy Pippin. Again, Queen Anne is a synonym of Mother, a variety having its season from November to February. Neither your nor your neighbor's apples resemble either the Lowell or Mother.

Your apple is, I think, beyond doubt, Cocklin's Favorite, an old Pennsylvania variety, far superior to the Maiden's Blush. Your neighbor's apple is Cooper's Early, formerly called Cooper's Early White. This is a very superior apple, and I should be pleased to have some scions next spring.

S. B. Heiges,
Sept. 12. *Pomologist.*

Now, friends, it has given me much pleasure to know that what I write in Gleanings has interested somebody at the great head of our nation, and it also gives me more pleasure to know that an expert pomologist has been employed by the government to straighten out our varieties of beautiful apples, and especially to remedy, so far as may be, the trouble of having several names for the same apple, and several apples for the same name. Just now I believe I should pronounce the apple in our dooryard Cocklin's Favorite—the most luscious and refreshing apple, when perfectly ripe, of any thing I have ever got hold of in the whole apple family. If you want the Pomological Department at Washington to set you straight on the names of the apples *you* grow, correspond with them as above. By the way, our readers may be pleased to know that the new Standard Dictionary defines about 335 kinds of apples, with a great many of the synonyms—that is, the different names for the same varieties of apples. And, by the way, this dictionary corroborates what Prof. Heiges says; namely, that the Queen Anne is only a synonym for the Lowell.

NOVELTIES IN FRUITS, ETC., PUT OUT BY OUR ENTERPRISING SEEDSMEN; THAT BEAUTIFUL NEW PLUM, THE "SLOE."

Friend Root:—In the last Gleanings you speak of two of the novelties sent out by the seedsmen in the past two or three years—the Rocky Mountain cherry and high bush cranberry, but you do not speak very highly of them. If I am not mistaken, I reported to you that the Rocky Mountain cherry was not fit to eat, last year, but was in hopes that it might be better on other soils and trees. It came well recommended from the West, but not so highly as to give one the impression that it would take the place of the common cherry; but some seedsmen, without any conscience, try to make folks believe it will.

The tree cranberry belongs to, or, rather, is the original form of, our common snowball-bush (*Viburnum opulus*). The snowball has been cultivated for its flowers until every one knows it; but the tree cranberry, or high bush cranberry, had to wait until the seedsmen got hold of it and introduced it—certainly not a very high recommend. It may have some good qualities, but I am extremely doubtful whether it can ever be compared with the ordinary cranberry.

I would suggest that you wait until cold weather, when the frosts may improve its qualities.

I think if you look into the matter you will find that the experiment stations test the new varieties of fruit as fast as they come out, or, at least, the Ohio station does. But the trouble is, you do not give them time enough. Your tests are just as reliable; and I have noticed, when looking over your gardens, that you are often ahead of them.

The fruit you speak of seeing at Remson Corners is the sloe, and belongs to the same family as do our wild plums, but of a different species. Its botanical name is *Prunus spinosa*, while the wild plum found in Ohio is *Prunus Americana*. My wife, who has known the sloe since she was a little girl, says it makes the best of preserves, and is good for drying.

I have been very much interested in the wild plum for several years, and this year I saw the orchard in bearing set out on the State University grounds; and such loads of fruit as some trees were carrying would surprise a person. The fruit of different varieties ripens from July to October, and ranges from a golden yellow to dark red in color. The trees are hardy and vigorous. The experiment station at Wooster has an orchard of over one hundred varieties, which will be worth going to see when it comes into bearing. My brother in Granger has quite a collection of young trees.

Columbus, O., Sept. 22. E. C. Green.

Thanks for your suggestions, friend G.; but the frost can not improve the tree cranberry, because they have ripened and rotted on the bushes. It may be they have been prematurely early this season, because every thing else is ahead of the usual time. We are glad of your suggestion, however, and will wait another year before deciding that they are absolutely unfit for use as a fruit. Who can tell us more about that sloe wild plum? and where can trees be purchased?

THE GAULT RASPBERRY, ETC.

You wonder if others who got plants of you are having such big bunches of nice large raspberries. Yes, you ought to have seen how full my bushes were the first ripening. The most wonderful thing about it is, I planted one row of Cuthbert by the side of the Gault; and what do you think is the result? Why, they have the same habit of giving a second crop of the nicest and largest Cuthbert raspberries I ever saw. I shall have Cuthbert raspberries till frost makes an end of them.

The Thoroughbred potatoes I got of you are about as nice as any thing can be.

Now a word about my bees. I had the worst swarming-time I ever saw. Of course, I managed so they did not all cast swarms. On some I put a Simplicity top with 10 frames on top of the one-story chaff hive. Those did not swarm. I had only about 21 that did swarm. Well, I hived 64 swarms; let some 9 or 10 go to the unknown, and hived back whence they came out about 10 or 12.

A NOVEL WAY OF SALTING BEES.

I salted my bees well. I strewed the salt all along under the eaves of the house. The bees licked up the salt water like sheep.

John Slaubaugh.

Eglon, W. Va., Sept. 10, 1896.

SECOND-CROP THOROUGHBRED POTATOES.

I here comply with your request, and send you my report of the second crop of Maule's Thoroughbred potatoes I received from you in July as premium. I received 72 eyes in 2 lbs. I dug the ground with a spade, and cultivated by hand. The soil is prairie loam, well fertilized previously, but I put no fertilizer on this year. Ten hills came up in about two weeks after planting; and from planting to date 32 out of 52 hills planted have come up. The last came the latter part of September, and is now about 3 inches high. The first ten hills promise a fair yield; and if the frost holds off until December I think the rest will bear potatoes, as they are growing vigorously. I do not write this to find fault, but to say to you that, if the first crop produces a second, they must be better ripened before planting.

John E. Tawney.

Cedar Bluffs, Neb., Oct. 3.

We clip the following from the *Practical Farmer:*

I got one pound of Maule's Thoroughbred from Mr. Root, and raised over a bushel of tubers.

Demorest, Ga. A. M. M.

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GINSENG.

For some time I have been wondering why we received so many inquiries in regard to the root ginseng. Mr. Calvert suggests that the brokers who buy up beeswax throughout the country are also in the habit of purchasing this root for the Chinese trade; and as we handle beeswax in large quantities they naturally take it for granted that we buy the ginseng also. Just now I am reminded that it has been my impression for some time that there was a swindle somewhere connected with this ginseng business. There are items going about the newspapers, and several have been sent here with the request that we publish them. In regard to growing ginseng for the market, my impression is somebody expects to make a lot of money by selling seed or may be roots. I have wondered for some time that the market continues to hold out at such prices for the root. If the Chinese would use their money instead to buy the cheap corn and wheat we have on our shores for their starving multitudes, it would be more sensible and Christianlike. Ginseng is hardly recognized as a medicine in our country. The Chinese are ransacking the earth in search of it, and expending thousands of dollars, so far as I can learn, just because of a superstition of their own in regard to it.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

MAULE'S THOROUGHBRED POTATOES.

Prices of potatoes will remain as given on page 729 of our previous issue, with the exception of Maule's Thoroughbred. This has been advertised in one of the agricultural papers at a lower price than ours; therefore we make the price as follows: ½ peck, 60 cts.; peck, $1.00; ½ bushel, $1.75; bushel, $3.00; barrel of 11 pecks, $7.00. If anybody has paid a higher price this fall, if he will mention it we will give him the proper rebate. On the White Bliss Triumph potato I think I gave the price rather too low. I am told that it can not be had anywhere else for the money Our second size is all gone, and the firsts are going rapidly Thoroughbreds will still be offered as premiums for subscribing. One pound will be presented to everybody who sends us $1.00 for GLEANINGS, past, present, or future; and $1.00 worth (one peck) will be given to every present subscriber who gets us a new name; that is, to every present subscriber who gets GLEANINGS introduced into some home or locality where it has not been going before, and who sends us $1.00 for same. The premium potatoes are given with the understanding that the recipient pays postage if wanted by mail.

THE WHITTAKER ONIONS AND WHITTAKER ONION-SETS.

We are entirely sold out of the sets, but have a few large onions left. As we are obliged to buy the sets and pay a larger price, we can not furnish any more of the small size or sets at less than 18 cts. a quart; $1.25 per peck, or $4.00 per bushel. We can, however, make a lower price on the large onions than we have ever offered; namely, 10 cts. per quart, 75 cts. per peck, or $2.50 per bushel. Please bear in mind, friends, that these and the multipliers do not make sets or seed. They are simply large onions or small onions, or intermediate. If you plant the small ones, they grow big; if you plant the big ones they grow little. They grow little by bursting apart and dividing into a large number of small ones. I presume the Whittaker onions will winter safely if planted any time before the ground freezes; although it is better to plant them soon enough so they get well rooted before freezing weather. If they should not get rooted, some sort of mulch will probably be needed. I can not tell very much about that. We consider them very valuable because they are so exceedingly hardy, make great large nice onions, and never bother by sending up a seed-stalk.

KIND WORDS FROM OUR CUSTOMERS.

Dear Bro. Root:—Your wheelrides no doubt are healthful to you; your sermons are beneficial to me, and I hope they are to all your readers.
Canova, S. D., Aug. 30. L. R. HILLMAN.

About half of the 800 shipping-cases you sent me are now made up, and they're beauties. I thank you for the very exact workmanship on them.
Marengo, Ill., Sept. 21. C. C. MILLER.

After one year's trial of the Crane smoker in a large apiary I find it the best one I have got hold of. The valves and bellows proper are entirely free from creosote, and no repairs yet.
Clinton, Me., Sept. 6. JOHN REYNOLDS.

I wish to assure you that I appreciate GLEANINGS greatly, and have done so for years—formerly for the sake of its bee-literature, but lately mostly for what you have to say about the kingdom of God and his righteousness. CHAS. WOHLENBERG.
Hartshorn, Ind. Ter., Sept. 23.

We never have a season a complete failure here. Last year was reckoned a bad one, yet bee-keepers with 100 colonies got about 10,000 lbs. extracted. For all that, some of us would like to see the Home of the Honey-bee. In writing to Atlee Burpee & Co., of Philadelphia, last week, I said I often wished Burpee & Co. and A. I. Root were nearer to us. May A. I. R. be long spared to write for GLEANINGS.
T. M. HEWITT.
Lismore, N. S. W., Australia, July 6.

Friend Root:—The strawberry-plants arrived in good shape. I don't think I shall lose 10 plants out of 300. They were the best plants I ever received. Thanks for the extra ones.

We are thinking more of the A. I. Root Co. every year, and the way they do business. We think it is simply perfect; in fact, you are getting to be an old friend of ours, and you may be sure of our order for every thing we need in your line.
THOS. MEYERS & SON.
Carsonville, Mich., Sept. 1.

The 200 strawberry-plants came all right, and are doing nicely. I do not expect to lose more than half a dozen in spite of the dry spell. I planted them by lantern light the same night they came.
Richmond, Ky. J. LOUIS SCHLEGEL.

[There, friends, here is one of the secrets of success. It is very much better to put out any kind of plant in the evening than in the morning. They get a little bit of start over night. Our friend, recognizing this, came out with a lantern rather than hold the plants over 24 hours to wait for another evening. This makes a vast difference between letting the plants lie three or four days, and may be a week, because some other business is on hand or something of that sort.]

Your travel on the wheel from New Philadelphia to Newcomerstown was interesting to me, as I was born about half way between said towns, in an early day when the wolves could be heard to howl, and the deer could be seen to trot around up the south branch of Fry's Creek, in Clay Township, 2 miles from Lock No. 17, and 4 miles from Port Washington. I have been in that town scores of times; and to see peaches at 10 cts. a bushel calls to mind when they could scarcely be sold or even given away (and here $3.00 or $4.00 a bushel)—a very big change there since the fall of 1831, when I first squealed.
Limerick, Ill., Aug. 24. E. PICKUP.

OLD HYMNS—SHALL WE NOT KEEP GREEN THE MEMORY OF THEM?

Mr. Root:—A specimen copy of GLEANINGS has been sent to me. It is dated March 15, 1896, and on page 235 a writer (whom I take to be yourself) quotes four lines of a hymn, saying that he has not yet found the book containing it. One verse, as I recollect it, runs:

There is no name so sweet on earth,
No name so dear in heaven;
The name before his wondrous birth
To Christ the Savior given.
We love to sing around our King, etc.

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I have contended for years that the singing should be one of the chief parts of the service—not singing by a hired quartette, but good congregational singing. I have been in cow-camps on the frontier of Texas, where swearing and vile language were almost all one would hear, when suddenly one of the boys would break out in some old hymn, and sometimes the whole camp would join in. It was but for a few minutes, but those few minutes may have kept the knowledge of Christ green in their hearts. Sermons and prayers had been forgotten, but they could not forget the old hymns.

Hotchkiss, Col., Sept. 27. HAMILTON L. JAMES.

[Dear brother, quite a number have told me where this beautiful hymn could be found; and one writer was so kind as to tear the leaf out of his book and send it to me. I most heartily indorse every word you have said in regard to the value of singing. Let us all do our part to keep it going, and to be sure that the refreshing and reviving power of the words and music is not forgotten or forsaken.]

A KIND WORD FROM A 12-YEAR-OLD ROOTLET.

On page 690 of our issue for Sept. 15 I mentioned that Miss Ellen Fenn, 12 years old, fed the planter so there was not a miss in that whole 18-acre field of potatoes. It seems, however, I did not give her full credit after all. See the following:

Cousin Amos:—You made a mistake about our potato-planter. It is *not* the latest improved. It does not put any of the potatoes in the cups. I had to put all the pieces of potatoes in the cups myself, which was lively work. From a loving Rootlet,

Tallmadge, O., Sept. 29. ELLEN W. FENN.

Since the above was in type we have received the following from the manufacturers of the potato-planter:

Mr. Root:—Since the cut was made which you used, we have made an important improvement by which from 60 to 95 per cent of the seed is fed automatically, the boy or girl correcting its work, putting in the misses and taking out the doubles.

Grenloch, N. J., Oct. 12. BATEMAN MFG. CO.

THE "SLOE" WILD PLUM.

This is doubtless the same as the one that grows here wild in the woods, on low branching trees 6 to 8 feet high. Negroes peddle the fruit about town every summer, at 5 cts. a quart. It makes splendid jelly, preserves, or pies, and, when dead ripe, can be eaten out of hand, though rather tart. The name here is spelled *sloe*.

Your last Home talk touched me in a tender spot, as quite likely it did many others. S. F. HERMAN.

Tuscaloosa, Ala., Sept. 26.

I have taken GLEANINGS a number of years, and like it very much. I should very much miss it if it should be stopped. I think your talks through it are worth all the paper costs. A. G. COON.

Boulder, Col., Sept. 27.

I wish to say just a word in regard to Home Papers. Their influence was one of the principal things that brought me into a better life. I am trying to live a practical Christian life.

Kingsville, O., Oct. 6. O. S. BUGBY.

HONEY MARKET.

While considerable honey is moving, the prices realized are below any former year. Considering the good crop and the low prices on all commodities, prices of honey are no lower than we might expect. We have received an order for a ton of extracted honey from Sweden. We believe that, at the present prices, we might find a market for a large quantity of honey abroad. We offer choice new extracted in 60-lb. cans, 2 in a case, at 7c per lb.; last year's honey, equally good, at 6c, as it stands candied, or 6½ liquefied.

Fancy white comb honey in 1-lb. sections, 24-lb. cases, in lots of 100 lbs. or over, 14c per lb.; 200-lb. lots at 13c. No. 1 white, 1c per lb. less. Fancy buckwheat, 3c per lb. less.

BEESWAX WANTED.

While we have a fairly good stock of beeswax, we are always anxious for more. The increasing popularity of the Weed new-process foundation helps us to use more of it. We are paying 22 cents per pound cash, 25 in trade, for average wax delivered. On goods taken in trade for next season's use we allow also the early-order discount. If you have any wax to dispose of, send it on to us. If you know of any lots seeking a market we shall be pleased to have you direct it this way.

BEE-SUPPLIES EXCHANGED FOR HONEY.

The honey market is active, and a great deal of very nice honey is being moved. We are finding an outlet for quite a little, and shall be glad to secure more in exchange for supplies. If you have any to exchange, give us a description of what you have to offer, how put up, and what quantity. If extracted, mail a sample, and state the price you wish to realize. If we can not pay your price we will tell you what we can afford to pay for such honey as you offer us.

POTATOES FOR SEED.

Burpee's Extra Early and Carman No. 1 are both sold out. We have just received several hundred bushels of the Freemans grown by T. B. Terry; and as we have often said before, if you want the finest eating potato that is to be found anywhere in the market you can not do better than to get the Freemans grown by Mr. Terry. They are good-sized, nice, and smooth. At the prices we offer them they are reasonable, even for an eating potato, providing you want the very best to be had.

We have just succeeded in getting some very nice Early Ohios, entirely free from scab. Price 25 cts. a peck; 40 cts. per ½ bushel; 75 cts. per bushel; $3.00 per barrel. THE A. I. ROOT CO., Medina, O.

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The Corneil smoker is a Dandy with a big D. I have been using it to-day on the crossest colony of bees I ever saw. I think I could drive a bulldog with it. S. R. ACKER.
Amityville, N. Y., Oct. 15.

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THE A. I. ROOT COMPANY,
MEDINA, OHIO.

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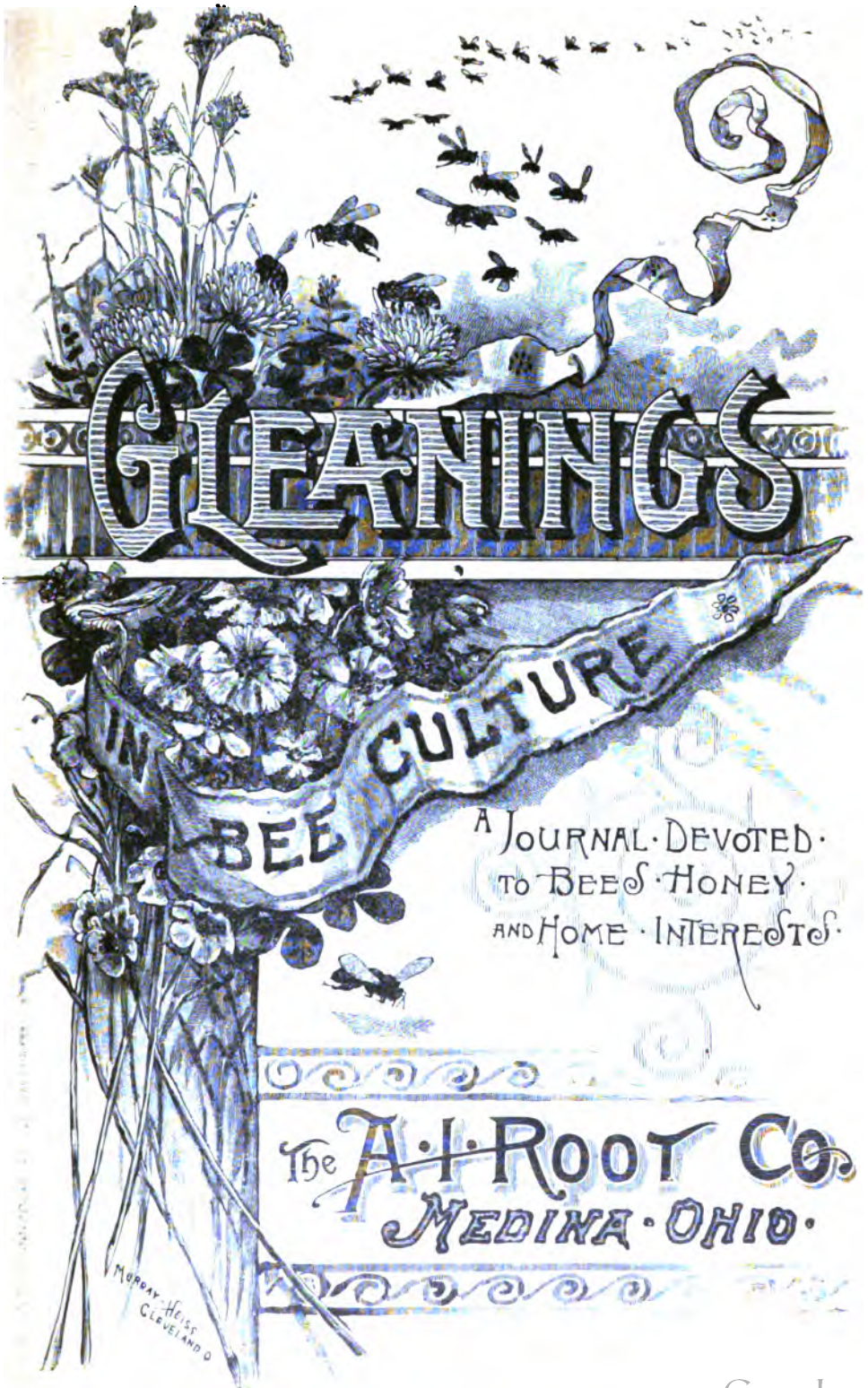

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[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR. C. C. MILLER.

ABOUT HALF of the wild bees have drones with stings, and some of the wild bees are only $\frac{1}{32}$ of an inch in length. So Prof. Bruner told us at Lincoln.

I INDORSE every word A. I. Root says about the way we outsiders were treated at Lincoln. It was no second-class fare we had, but just the best of every thing.

A. I. ROOT never visited a single cabbage or turnip patch while at Lincoln, unless he did it before the rest of us were up in the morning. [That is true, and it is something remarkable. —ED.]

I WONDER if some of the old hankering for strong drink doesn't yet remain with A. I. Root. At any rate he inquired of me if there was any saloon connected with the Lindell Hotel, where we stopped. And neither of us could find any.

IF PARAFFINE is left untouched by bees, why not apply a coating of it to ends of top-bars and other points we don't want glued? [I'm not sure but that paraffine at the edges of brood-frames that come in contact with each other might be a great help.—ED.]

STRAY STRAWS in last GLEANINGS are not as good as usual. They never are when the editor is at Lincoln. If he thinks it's fair for me to write Straws without footnotes, some of these days I'll let him write a full set of footnotes without Straws, and see how he'll like that.

NEBRASKA BEE-KEEPERS are to be congratulated on having two such aids as Prof. Bruner, the entomologist, and Prof. Bessey, the botanist. Besides being able they're good. I just fell in love with both of them. [I would go a little further, and say the bee-keepers of the United States are fortunate in having such aids as Profs. Bruner and Bessey.—ED.]

SWEET CLOVER. Mrs. L. E. R. Lambrigger says in Nebraska *Farmer*, "For honey purposes we should prefer one acre of the yellow to four of the white, while for hay and pasture one acre of the yellow is preferred to a dozen of the white." Now, who can tell us more about this? I always supposed the yellow was inferior, and have never seen but a few stalks of it.

THE *British Bee Journal* says honey will remain liquid longer at 65° to 75° than at a higher temperature. I wonder if that's correct; and if so, why? [We in this country have come to the conclusion that a temperature of from 70 to 80 degrees Fahr. is more favorable to keeping honey liquid than a lower temperature. Possibly English honey is a little different from that produced in this country.—ED.]

LET ME TELL F. Greiner (see page 740) that I learned bees would forage at 5 days old much in the same way he did—that is, by actually seeing them at it. I did it for the entirely safe introduction of a costly queen, putting in the hive no bee out of the cell but the queen. And when I saw bees only 5 days old carrying in pollen, it would be hard for Herr Vogel to reason me into the belief that it was impossible till 13 days later.

BROTHER A. I., please don't run that microbe theory into the ground. At least, don't insist that all stomachs must be governed by Medina rules. I can go out this minute and find an apple on the ground under a snow-tree, mellow and delicious beyond any thing I can find on the tree, and I can eat double as many of those on the ground without hurting me. Much depends on the kind. I shouldn't like to eat a Baldwin or a Spitzenberger right off the tree.

THE HUSH-UP POLICY seems to be going out of date. Years ago there would have been a vague hint that "certain parties in one of our large cities might well be investigated before being entrusted with large consignments." Now Geo. T. Wheadon & Co., and other names, are given in very plain English, with not only the city but the street and number. That's right. When a man goes crooked, whether in or out of our own ranks, and it's known that he is deliberately bad, and intends to remain so, the general good demands that his name be given.

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DOOLITTLE says in *American Bee Journal*, that in mailing a queen for a three-days' trip of 600 or 800 miles, or for any shorter trip, he allows an escort of 8 workers in July and August, and 11 workers in June or September. For a longer trip a larger cage with 12 bees in July or August, and 14 to 20 in June or September. For colder months 30 to 40 bees. That tallies pretty well with the escort of 35 from Italy, mentioned on page 758.

POSSIBLY Mr. Danzenbaker is right, p. 756, that "the bees have to stop to gather and chink in propolis" before commencing to store honey in the supers; but I'm strongly of the opinion that my bees do nothing of the kind. Early in the season they do very little propolizing, chink or no chink; and later in the season they plaster bee-glue everywhere, even after every thing is sealed air-tight. [I was of the opinion myself that Mr. Danzenbaker was not entirely correct; for you notice I based the statement entirely on his authority.—ED.]

THAT FATAL STINGING case on p. 754—isn't there some misprint or some mistake about it? Did the bees volunteer an attack upon a horse picketed a quarter of a mile away from their hive? [I believe there is no mistake, doctor. In some cases, when bees are allowed to get fearfully enraged they will go a long distance to sting something or somebody. I remember once when the bees got to robbing very badly in our own yard (sorry to confess it), and I afterward heard that some people in our portion of the town and a quarter of a mile from the apiary had been stung.—ED.]

"FEEDING by pouring syrup on the bottom-board . . . with fast bottoms . . . may do very well," says the editor, p. 743. I think not. I practiced just that thing on a large scale, and liked it till I found too many dead bees as a consequence. But you must watch closely or you'll never notice it. [I can readily believe, doctor, you are right. In feeders where a large surface of syrup is exposed, as it would be in case of the bottom-board or bottom of the hive, we are pretty sure to have some bees drowned. They get into the syrup and swim around a distance, and give up and die. It is far safer, I believe, to use regular feeders. The Boardman or the Miller is much preferred by us.—ED.]

REFERRING, Mr. Editor, to your last remark, p. 748, I think the splints do more than to prevent sagging, and I'm not so sure that a filled comb will stay in the frame any more solidly with wire than with splints. As to hauling to out-apiaries, I wouldn't think of using full sheets of foundation without having them more or less fastened at all four sides with melted wax, whether wire or splints were used, so they could be safely hauled in either case. [But the splints, doctor, do not of themselves hold the foundation *independent* of any fastening to the inside edges of the frames. The wires, inasmuch as they are strung to the frame itself, and imbedded in the wax, hold the foundation in place. When we use full sheets we never think of using any melted wax or of making any other attachment than the wires afford except to the top-bars; and if we were using perpendicular wiring we would not use even that.—ED.]

DR. E. GALLUP says in *American Bee Journal* that he introduces queens with tobacco smoke morning or evening when all the bees are at home. If done through the day, some bee that was out and escaped the smoke will kill the queen. [We introduce queens right along in our apiary, without tobacco smoke. We simply use the Miller introducing-cage; and if we make sure the colony is queenless we seldom if ever have any failure. The use of tobacco smoke for the purpose of uniting or introducing should be condemned, especially in the hands of beginners. A colony that has been drugged is ten times more liable to be robbed, and I can not help feeling that tobacco does in a measure do injury. The only time we ever use it is during the days of our county fair, when we desire to keep the bees at home away from the candy stands; and after having drugged the bees with tobacco for this purpose during the holding of three or four different fairs I am coming to believe that we were doing no little damage. The weed is a poison at best.—ED.]

SUPPOSE a colony is unqueened, how long before a successor begins to lay? Answers in the *American Bee Journal* make the time vary from 16 to 40 days, most of the answers centering somewhere about three weeks. The discrepancies in the replies make it seem doubtful whether some of the repliers have ever made careful observations on the point. [Even considering the circumstances and conditions under which a colony may be queenless, and whether or not the apiarist or the owner of the bees assists them, the range of answers as given in the *American Bee Journal* is a little wide. If the apiarist gives a queenless colony a cell ready to hatch within a day, there may be a laying queen, if all goes well, in about ten days or less. In my early experiments in queen-rearing, carefully comparing a number of colonies, I found that young queens were fertilized in from four to seven days from date of hatching. These intervals of time were taken by giving newly hatched queens to colonies, and then watching closely to see when they came in with a drone appendage. In from two to three days after the queen thus came in she would be laying. This would make it, when a newly hatched virgin queen is supplied, 6 or 10 days from the time of dequeening to the time the new queen mother was doing service. But I

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presume the question is based on the assumption that the colony really depends upon its own efforts. Well, then, the bees might select a larva four days old, and build a cell around it. This would leave about twelve days for the young queen to hatch; say six days more to be fertilized, and two days more for her to be laying, or, in all, about 20 days before there would be a laying queen. If the bees reared a cell from an egg, the young queen would hatch in about 16 days. Adding 8 days more for egg-laying, there will be 24 days. The answer as to the time a colony may be actually out of a laying queen, from date of dequeening to the laying of a new one reared by the bees alone, I should say would be from about 20 to 30 days.—ED.]

THE BEE-KEEPERS' EXCHANGE.

SOME OF THE OBSTACLES THAT HAVE BEEN MET IN A LOCAL EXCHANGE.

By C. A. Hatch.

While some are urging the organization of a national bee-keepers' exchange to control the honey market, lessen cost of supplies, etc., it may be well to inquire into the workings of one in actual existence, covering but a small part of our national territory. The Bee-keepers' Association of Maricopa Co., Ariz., is such a one. It has been in successful operation for a number of years, and at one time had quite a large membership; but at present the number is reduced by about a half, who have withdrawn and started another society. It is a stock company, and the original shares sold for $2.50, but now they cost $5.00. The owning of a share makes the owner a member, and entitles him or her to one vote in the business of the society.

The officers are the usual ones for any association—president, secretary, etc. The secretary is the business manager, assisted by a board of directors, of which the president is an ex-officio member. The secretary only gets pay for his services. His salary is fixed at $100 per year, and necessary expenses — telegrams, stationery, postage, etc. He attends to the buying of supplies, and selling and shipping of honey. He can not buy nor sell except by consent of the directors. In selling, each member is independent; i. e., he is not by his membership bound to sell through the society, but can ship and sell his own crop if he so chooses, which is one of the weaknesses of the organization; for, while one half of the members might agree to sell at a certain price, the other half might object and thus defeat the wishes of the other, not so much by voting against the measure as by putting their honey in the same market to compete with the associated product. Or the dissenting ones may sell to the same parties, and sometimes defeat the early shipment of the society's honey. This was done in the Maricopa association this very year, the buyer of the association honey being compelled, to avoid competition, to buy a dissenting bee-keeper's honey, to the detriment of the associated honey, as that was held back from market until the other was out of the way. The way to avoid these troubles would be to bind each member to sell through the association when a majority so votes.

The secretary also decides how many cans of a carload belong to each person, and the bee-keeper is supposed to be under obligation to take that number or get some one else to take them if he does not use them. His duties also require him to inspect honey offered for shipment, and to see to the weighing and loading of the same when delivered at the home depot.

The expenses of the Exchange are met by a tax of 4 cts. per case of cans, whether coming into the association as empty cans or going out as filled with honey. If a member gets his cans through the society, and then sells the same way when filled with honey, he has to pay 8 cts. per case. This would seem to be as equitable a plan for raising funds as could be devised; but it is open to serious objections, giving the small bee-man an undue advantage over the large producer. The member with only 10 colonies has as much voice in disposing of the fund so raised as the one who has 600 colonies. This in a measure might be overcome by giving members votes according to the number of colonies on hand in the spring, or according to the number of cases of honey shipped the year before.

The unit rule of voting also makes trouble in another way. Suppose a meeting is called to determine as to sending for a carload of honey-cans. Mr. A may have 500 colonies of bees, and all the cans he wants; but Mr. B, with 25 colonies, votes to send for a car, as he is out of cans. His part of the carload might be 12 cases, costing $10.00, while Mr. A's share at the same rate would be about 250 cases, costing over $200.00, which he is compelled to pay for, getting something he does not need and is compelled to carry over to the next year, only, perhaps, to be met by the same difficulty.

The Maricopa association confines its work to buying cans and selling the product of its members, although there are members who do not sell through it. The hives and frames are so various among the bee-keepers that no effort is being made to supply them.

I hope those who are about to organize bee-keepers' exchanges may find some helpful suggestions in this article, and profit by a Wisconsin man's experience with an Arizona honey and bee-keepers' association.

Pasadena, Cal.

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THE GABUS CLOSED-END-FRAME HIVE, AGAIN.

THE COMPARATIVE ADVANTAGES OF CLOSED-END STANDING AND LOOSE HANGING FRAMES.

By E. H. Gabus.

In GLEANINGS for Oct. 1, 1896, p. 709, Dr. C. C. Miller, in answer to H. P. Joslin's queries concerning my hive, says, in speaking of the $\frac{5}{16}$ holes in the end-bars, that it would be impossible to insert or withdraw the bolts. When I wrote the article that appeared March 1, 1896, I had been using frames with ⅜ holes; and as the bolts had more room than I thought was necessary I was thinking that $\frac{5}{16}$ holes would be big enough. I found, however, that in practice $\frac{5}{16}$ holes are just a trifle small, and that it is better to have the holes a little too large than too small, and have continued to make them ⅜. I can assure Dr. Miller that, with ⅜ holes, there is no trouble whatever in inserting or withdrawing the rods.

Now in regard to standing frames not handling as well as hanging frames, I wish to say that the trouble does not exist in the frames themselves, but is located in the person's mind. Very often all of us, and on many subjects, make up our minds that a certain thing or a certain way of doing a thing to accomplish a desired result is too much trouble, or that it is no good anyhow. We are really not willing to give it a fair trial: and when that is the case, it is very certain that our report will be unfavorable, for the very reason that we were not the proper person to give the thing a fair and impartial trial. I can handle the standing frame as easily and as quickly as the hanging frame, and I can handle the standing frame with more satisfaction than the hanging frame; for in handling it I can see just what I am doing, and that is not the case with the hanging frame; and, furthermore, I do not think it is necessary to handle the frames as much as some do.

In regard to reversing hives to obtain better results, I want to say that it is advocated by a great many bee-keepers. It is possible that, by reversing, we can have the honey carried from the brood-nest to the super, and have more brood in the brood-nest, which, if it works well in practice, would be an advantage. I can not speak from experience, as I have never practiced such a system. In regard to getting the bolts through, as Dr. Miller says, "It might require more time and care than desirable." Certainly Dr. M. never handled standing frames. The frames are pushed against each other so no bees can boil out, as he says, at the open joints, before the bolts are put through. I send you herewith a case or part of a hive as I now make it. The frames are half depth, and two cases will make a hive for an ordinary swarm or colony. The size of the hive can be increased and diminished at pleasure in either a horizontal or a vertical plane. By using a bottom similar to the dovetailed bottom, reversing can be practiced. If the frames are put together and the top-bar left off, they make the section-holders, section-slats being put on the bottom-bars to protect the sections from the bees. In that way I can dispense with any special section-holder. There is a bee-space at the bottom, and they tier up square and true.

Brock, Neb.

[There are some closed-end frames that are handled as easily as any loose frames. The Quinby as used by Elwood and Hetherington works very freely without killing bees or sticking from propolis accumulations. I see no reason why your frames should not be handled easily, though I somewhat question whether bolts and rods passing *through* the end-bars is as economical an arrangement as it might be. —ED.]

PEDDLING HONEY.

KILLING TWO BIRDS WITH ONE STONE; FOLLY OF SELLING POOR GRADES OF HONEY AROUND HOME.

By F. A. Snell.

The bee-keeper can, when not busy with other work, take a load of principally extracted honey and sell it, when perhaps he would not be otherwise employed, and thus earn something more toward the keeping of the family. Any leisure time, be it half a day at a time only, and during autumn, sell quite a nice lot of honey; or if, having business with some one several miles from home, several cans may be thus sold. On such a trip I called at the different families. To the family first called on, I sold one 10-lb. can; at the second place I took in a can, asked them to give me a sauce-dish so that I might let them sample the honey I had. The honey was tried, and seemed to please. The lady remarked that she had intended to get some at the store, but forgot it when in town, so they had been going without. They bought a 10-lb. can, and, after a few minutes' chat, I took my leave. At the next place the family were from home. I called at the next house, and, after sampling the honey, the people bought two cans, or 20 pounds. I was informed that they were short of change, but would leave the pay for the honey with our postmaster in a short time, which was satisfactory to me, as I well knew these people to be reliable. I next called at the place of my destination, and, before leaving, sold a 10-lb. can and received my pay.

Thus five cans, or fifty pounds, were sold, bringing me five dollars. The cans were returned, as I arranged to have them back when the sales are made near home. If the buyers neglect to return the cans I call for them when passing that way. So it will be seen that the net price of the honey is 10 cents per lb. when thus sold, the buyer retaining the cans until

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emptied. The extra time consumed in selling the fifty pounds on this trip did not exceed one hour, and my horse did not object to the short rests on the way in the least.

Many times I have taken along a few cans when going on similar trips, and sold from two to four or five cans on the way, at times going one road and returning by another, making stops both ways.

In peddling honey one must not be easily discouraged, for sometimes a number of calls may be made and no sales effected; and then, again, it is quite the reverse, and honey will be sold at nearly every point at which a stop is made. One must start out with full faith in his honey as being of fine quality, and cheerful in spirit, and a determination to sell to every family possible, even if only two or three pounds, leaving a leaflet at each place, and his honey-label on each can, with name and address, which should mention the candying of honey in cool weather, and how to liquefy. I can not agree with some bee-keepers who advise the selling of the poorer grades of extracted honey at home or in the home market. I believe a poor grade of this honey should never be sold at home, but sent off to be used in the packing of meats, or in factories where cheaper sweets are used. If this grade of honey be sent to a commission house, the apiarist should advise the firm of the shipment, grade of the honey, and the company to whom the honey is shipped will know at once where to place it in selling. The selling of inferior extracted honey, or of a low grade, has, when sold for family use, done a great deal to injure the sale of honey, and is, I think, very unwise on the part of the apiarist who wishes to build up a good trade in honey, or hold one already obtained. One season the quality of our honey was very much injured by a mixture of so-called honey-dew. I offered no extracted honey for sale at home that season; and when asked by old customers if I had honey to sell I informed them that I had no honey that I had extracted which was fit to eat, as it was mixed with so-called honey-dew, and dark and rank in flavor. Of our comb honey that season, the better sections were picked out and sold; the dark (almost black) ones were given the bees the next spring. The extracted was sent to a commission firm, and sold for the purposes above suggested, at the low figure of 5 cts. per lb.

Milledgeville, Ill.

DRAWN COMBS FOR SECTIONS.

FEEDING TO PRODUCE WAX; HOW TO SECURE DRAWN COMBS FOR SECTIONS BY FEEDING, IN ADVANCE OF THE HARVEST.

By Samuel Simmins.

Mr. Root:—At the present moment it may perhaps be brought the more forcibly to your mind that the reason why you and others condemned, or failed to appreciate, my non-swarming system, as applied to the production of comb honey, was because you did not grasp the real facts of the case. You probably considered, as did other honey-producers, that bees would not work in sections while so much empty space existed under the brood-combs. Yes, and how difficult it has been to get bee-keepers generally to know that their industrious workers *would do it every time*, without any necessity of following the old idea of crowding the brood-chamber "tight" for the purpose of securing the best-filled sections.

For more than ten years I have been pegging away at this matter; and, by the pamphlet sent you with this, you will see that the basis of my *system* as applied to comb-honey production was *drawn combs*.

Perhaps you will now realize my position, and will see how easily one may be misunderstood, or the main feature of a plan of management overlooked, when such practical men as yourselves did not read me aright, as shown by your complete oversight in respect to my existing plan, and, you will admit, fully established claim to priority as regards the adoption and systematic preparation of new or drawn combs ready for the comb-honey harvest. I believe a copy of the said pamphlet was sent you when published in 1886, while friend Newman, of the *American Bee Journal*, disposed of a considerable number of copies at the time.

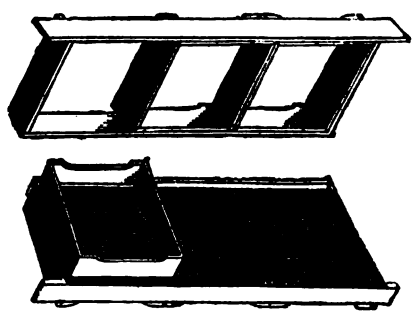

Fig. 23.
Simmins' Divided Section Holder, shewing arrangement of foundation and halved sections.

In the opening chapter of that work, after describing how the vacant space should be provided under the brood-nest, you will notice I proceed: "For all practical purposes the bees can be at once crowded into the sections, the latter being first *filled with newly built combs*." . . . . . "The supers (sections) being all fitted with combs, ... the bees will fill those rather than go on comb-building to any extent below, or in front of the brood-nest." . . . . . "When one has made up his mind to start with nothing but comb, he

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will find it can be done; and, moreover, an immensely increased yield will be secured thereby."

There are many other pointed references to the same prominent and integral feature in my system, which I need not bring in here; but for the latest developments in this line you will find important information in "Modern Bee-farm" (1893 edition), pages 95,* 114 to 118, 136, 138, 205.

You will notice (p. 118) no attempt is to be made to build out full-depth cells; but that, as soon as they are well on the way, the combs are for all practical purposes ready for business; and that state of progress is attained in the course of a few hours only, when favorable conditions are ensured by the apiarist.

On page 117 of the above work you will find, "Bee-keepers generally have saved over unfinished combs in sections from year to year, and these were found to give a good start to the bees; but nothing was done to institute the systematic production of such new white combs for all sections before being placed on the hive, until the present system (Simmins' non-swarming plan) was inaugurated."

However, "combs left over" are not to be compared with the new combs, which are so readily obtained and more rapidly worked. This point will be freely admitted when it is remembered the fresh-drawn article has the strong scent of the living hive still clinging to it.

DEEP-CELL SUPER FOUNDATION.

My experience has taught me that, for comb honey, no cells whatever are required in the purchased foundation, but simply the thinnest possible mid-ribs impressed as usual, and in that case the natural base of course, being used. I do not see how a high side-wall (thin enough) is to be gained. Even if ultimately secured, it will not be found so favorable as other foundation which has already and *quite recently* been worked upon by other bees. What, then, are to be the advantages of high walls? Such will be too bulky in shipping, more liable to damage, while cost and freight will be prohibitive as compared with the lighter article. Moreover, I do not think the bee-keeper will care to pay for the surplus wax, especially as deep cells encourage pollen deposits where the most careful management is not carried out.

PREPARING FOUNDATION; DRAWN COMBS SELF-FIXED INTO SECTIONS.

If you will cut three sections into full-length halves, and also divide a section frame or holder, then arrange the whole set so that they go together again as one, and next place a sheet of foundation measuring some 4 in. deep by 13 in. long (4x13) between the halves, you have a correct representation of Fig. 23 on p. 95 of my "Modern Bee-farm." Can you imagine any thing neater, or a more expeditious and secure way of furnishing the sections? The halves can be put together by simple hand pressure, and inserted in the twin frames or holders, as the latter lie flat on a table before the operator, more rapidly than the entire section can possibly be folded by any known process.

Having followed me so far you will now understand my method of securing drawn combs ready for the crop of section honey. The whole sheet of foundation is attached (by pressure at intervals along the top-bar), to that half-frame, to which, on its other side, is secured the separator, with three half-sections between (separator and foundation).

These half-sets are then spaced about ⅜ in. apart in a super case, and drawn out by specially prepared stocks, being exchanged for others as rapidly as the work can be made to progress. The companion halves (of each set of sections and holder) are then pressed on to the other side of the newly worked combs, and arranged in cases for completion as soon as the good times come.

The halves of the holders are more easily removed from the sections than are the whole sections from an entire (old-style) frame when the combs are completed; while the foundation connecting the sections may then be divided by fine wire, or the three handled as one.

An alternative plan is that where my twin crates are used. In this style no separators are required, and the foundation may be first "drawn" as before in half-frames. The three half-sections and adhering new comb were then removed from the frames and placed in the twin crates, together with the blank half-sections in due order. The same crates, holding only nine sections each, may also be used in lieu of section-frames. They can be placed for the purpose of drawing comb immediately above the center of the brood-nest, when, with a suitable colony to work with, many combs can be prepared; and there is less trouble in shifting, as the contents of the crate are arranged as they are to remain; consequently my sections cut on only three sides are adapted to this class of crate—a full-width sheet of foundation being dropped into the three sections at one operation, where it is immediately self-fixed.

Heathfield, Sussex, Eng., Sept. 17.

[The foregoing article I referred to Mr. Weed, the inventor of the New Process foundation, and an expert in the wax business. After reading the article and Mr. Simmins' books, Mr. Weed expressed his doubts that wax could be produced at a profit by feeding, and gave his reasons why. I told him I wished he would put his thoughts on the matter to paper, and the following is the result:]

For the benefit of those not familiar with Mr. Simmins' book it will be well to say that his whole "system" is based on the theory that

*For convenience of our readers I have reproduced the engraving appearing on page 779.—ED.

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the production of wax is a profitable branch of bee culture, and that he predicts that, before long, it will be usual to feed back honey for the sake of producing wax.

It seems to me that comment on such a theory is superfluous; but Mr. Simmins' method of arriving at his conclusions may be of interest. He found, by feeding back, that 12⅔ lbs. of honey would produce 1 lb. of wax; but from this he deducts one-half as being the amount of honey consumed by the bees while building the comb. He thus figured that, according to the "Simmins system," one pound of wax can be produced from 6⅔ lbs. of honey. Why the cost of the wax should not include the feed of the bees and their time while making the comb is more than I can see.

I think it will be generally admitted that drawn combs are very valuable to the bees; but I scarcely see how Mr. Simmins can claim to be the discoverer of their usefulness. If it be a fact, however, that we can obtain a plentiful supply of drawn combs before the honey-harvest, by Mr. Simmins' method, he is certainly entitled to a great deal of credit.

But, let's see how he proposes to do it. After splitting the sections as shown in cut, he fills them full of foundation, making no allowance for sagging. He claims that this foundation will be built out to ¼ in. deep in a very few days, if we feed them carefully and keep them warm enough which he proposes to do by "any kind of hot-water vessel placed above, especially at night, where it can be regularly attended to." Drawn combs are pretty valuable; but I don't believe that many people want them badly enough to patrol the apiary day and night, with a tea-kettle full of hot water. The kind of foundation that he considers "perfect" for surplus honey is only a septum, without any side-walls whatever; for he finds his bees generally gnaw off all the side-walls before they begin to build. He must have had very strange bees to obtain such a result. Commenting on a recent editorial in GLEANINGS, Mr. Simmins says he doesn't see how deep-cell foundation can be made, and that the cost will be prohibitive. If he doesn't know how it can be made, how does he know what it will cost to make it?

It was not proposed to use any more wax, but to take it out of the base of the foundation, where Mr. Simmins prefers to have it, and put it into the walls where the bees can best utilize it.

Later.—Since the above was in type a letter has come to hand from G. M. Doolittle, who, speaking of putting on sections before the honey flow, says, "If we put our sections on early, and they are on when there is no honey to be had, the bees seem to be bound to cut out the ordinary light foundation and make a 'mess' so that when a yield comes the foundation is out of place or gone entirely, which is a nuisance." It would seem from this that Mr. Doolittle's experience with foundation before the flow is not the same as Mr. Simmins'.

[Whether Mr. Simmins is right or not in hi idea on the economy of producing comb mad by bees before the actual harvest, by feeding I should be inclined to give him credit for firs conceiving the great possibilities and advantage of drawn comb in the *production of com honey*. Now, if any one in this or any othe country is prior in this idea let him hold up hi hand.

I did receive the pamphlet bearing date of 1886; but I must confess that I did not at the time "catch on" to the value of drawn combs in supers. Indeed, I was and have been skeptical all along until Mr. Weed convinced me by actual tests in the apiary this summer that bees would fill with honey, and seal over sections of drawn comb, before they would even touch foundation in other sections next to them.—ED.]

BEE-KEEPING IN JAMAICA.

INDUCEMENTS AS WELL AS DRAWBACKS.

By H. G. Burnet.

Friend Root:—Bee-keeping in this ideal clime, one would think, should be in keeping with its surroundings; and if the location is properly selected, or the bee-keeper does a little migrating to catch the flow from different sources, he will ordinarily not find any thing to complain of. Box hives and black bees are the rule in the island—at least among the peasantry—with the old box super, with glass side, for the surplus arrangement. Some are beginning to use frame hives, and, of course, extractors naturally follow, and other modern appliances are apt to make their way, though slowly—at least among bee-keepers of the peasant class, who mingle more or less superstition with their knowledge. A colored neighbor who has an apiary of 100 colonies in boxes of varied dimensions sells his honey at retail at 12 cts. per pint—this for strained honey—for which the demand is greater than comb. Wholesale rates for export are much lower, being from 38 to 45 cts. per gallon in Kingston, which does not show a very great apparent profit; and as to how much profit there may be, I can not say until I have had more experience. I think the home market capable of expansion if proper care be shown in catering to it. A recent inquiry in Kingston showed the market entirely bare—none to be had at any price. No wonder there is no home market.

As to the drawbacks: In some places ants are very troublesome, and hives are set up on posts two feet high, and various methods used to prevent the ants from getting to them. In some parts of the island drouths sometimes cut seasons short, and even make feeding necessary if extracting has been too close: but if the bee-keeper sees to it that the lower story is not disturbed, the bees, if Italians, will go through

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all right. The low export price mentioned is for the ordinary strained honey. I imagine that best grades of logwood, orange, or lignum-vitæ honey, put up in neat packages, say five-gallon cans, would sell at a good price in London. It is honey that is hard to beat anywhere. There is a wide field for bee-keeping here, as well as for the growing of certain tropical fruits, and coffee, nutmegs, allspice, kola nuts, etc., and certain vegetables for American markets, such as Irish potatoes, egg-plants, tomatoes, etc. The soil is rich, the climate healthful and pleasant, and, in the mountains, quite cool and bracing. The scenery is lovely, and, among the mountains, magnificent. The government is English; but the larger part of the population is black or colored; yet they are more peaceable, and easier to get on with, than a like population in the United States.

Ewarton, Jamaica, Oct. 8.

COMB-HONEY CRATES.

MAKING THEM THE RIGHT LENGTH FOR A WAGON-BOX.

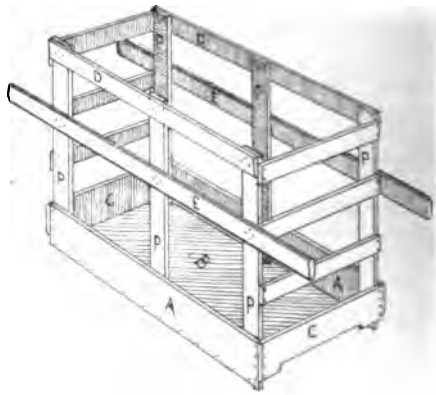
By F. Greiner.

Mr. Editor:—For shipping comb honey by regular freight you have for several years advised to crate together nine of the 24-lb. cases into one large crate, three cases side and side, and three high; and no doubt you have sent out a good many such racks or crates. Now, I can not believe that crates of such dimensions, as they would necessarily have to be, are the most convenient. I made up a few this season, and when done I found they would not load crosswise into an ordinary wagon-box; and to set them lengthwise, much space had to be wasted, and but few could be taken at one load. Being at our depot this fall one day I happened to witness the arrival of a few such crates coming from my friend C. F. Dodd, of Italy. They had been carried some eight miles on a wagon, and on account of their loading so unhandily one of them had been carried turned up on one side, so as to go into the wagon-box. As might be expected, the honey was leaking from this crate.

As we can not very well change the size of our wagons I would suggest, instead of constructing a crate for three cases side by side, to arrange it for but two, and then tier up four high, making eight to the crate — a package nearer cubic; also heavy enough for convenient handling, weighing about 250 pounds. Crates of this shape and size may be loaded with the projecting handles crosswise the wagon-box, and a fair load may thus be gotten on conveniently.

Of course, these crates are an additional expense to our business; but they may be returned to us by freight after the honey is taken out, and, if they are made well, they will last for years.

I inclose you a drawing of a crate I have been making of late. The drawing explains itself;



but I will give a few hints that may be of benefit to some one or other in case you should decide to publish this:

Although a crate may be made principally of edgings as they often come from the sawmill, I prefer to make them of regular one-inch lumber, preferably basswood. The strips the crate is made of need not be any wider than 2¼ inches, except the boards around the bottom A and C, which should be about 6 and 4½ inches respectively, and the regular bottom B, which may be of thin lumber, and should be tolerably tight. It is to rest on 1½ or 2 inch strips nailed to the boards A A, at the bottom. In constructing the crate I allow 2 inches space for hay or straw. The handles E E should project about six inches—no more—and should be rounded the whole length, as should be the strips at the top, D D. The sharp corners *inside* the crate would be found disagreeable to the hands and knuckles when setting the honey-cases into the crate, and when taking them out. The posts, P, P, etc., should be a full inch thick to give sufficient room for the fingers when filling the crate. The lower edge of the 4½-inch-wide boards C C may be rounded also, so as to be easy on the shins of the freight hands or other carriers.

There, now, if your artist will reproduce my drawing exactly as it is, it will be easy enough for any one with the above description to make the crate.

Naples, N. Y.

[Your point is a good one; and if we can change our crates and yet not run into some other difficulty worse than the one under consideration, we will make the change. The only objection to your crate is that it would be a little top-heavy—liable to be toppled over in freight cars when they are bunted by other cars. Our present crate takes in an even 50 shipping-cases *in the flat*. The new one should be made to do as much. We will test the matter.—Ed.]

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IN deciding upon the matter of working his bees for extracted or comb honey, Fred reasoned, but perhaps not without prejudice and inclination, that any clod-pate could run an extractor and be satisfied with half-way work and half-way success, while comb-honey production called for a higher order of skill. He also held the opinion that, if a person commenced to work his bees for extracted honey, however successful or skillful he might be, he should be so progressive as to aspire, student-like, to graduate from the various departments of honey production, and should regard every nice section of comb honey as a diploma to that degree. Fred further reasoned that, if the honey produced on the river-bottom was amber or light amber, it would show all of those grades to full advantage in the liquid state; but if put into comb the white cappings would raise the honey at least one grade, and could be sold to better advantage. In the promotion of these plans Fred had sent to San Francisco for several thousand sections; and while he was away employed in good works the little steamer Valetta, which never tied up over a Sunday, left his bundles of supplies on the Ghering wharf.

It was in this work of putting together sections that he wished to employ the services of Gimp Dawson; and early Tuesday morning he sculled his boat down the river for him.

In years past the Buells had been through the deep waters of affliction in the loss of a bright and promising boy of nine years. His clothing had been laid away with care, and twice a year or oftener it would be removed from its receptacle, and aired. On such occasions, as memory went back to the whistling, rollicking boy, Mrs. Buell would as often sit down, and, bowing her head upon her hands, give way to sobs and tears.

In view of the condition of the Dawson boys, Mr. Buell had mildly suggested that they could make no better use of the garments than to clothe the naked with them. After a few moments of sober reflection, Mrs. Buell said it was just as well, perhaps. Therefore, soon after the Buells landed, Gimp was taken into the bath-room; but half an hour later the Gimp that came out with Mr. Buell was not the Gimp who went in. Like a chrysalis he had shed his ragged shell, and emerged, not a gaudy butterfly, but a clean, wholesome-looking boy. He evidently appreciated the change; and as he surveyed himself he said, "Golly! non 'er the kids'd know me frum an eel—slick, am I?"

The supper-table, with clean white spread and dainty dishes, was another revelation; and, forgetting his mother's injunction, he let his tongue loose, and said, "Are this heaven, Mr. Buell?"

It was in this transformed and wondering condition that Fred found him. "Why, Gimp," said he, "you look every inch a man. The next thing for you to do is to earn some money. I want you to help me a few days at the Ghering ranch, and will pay you well for your work."

"Kin I ever come back here agin?" asked Gimp, with some apprehension.

"Yes, yes," said Mr. Buell, with emphasis. "Mr. Anderson wants your services for only a few days; then you can return, and next Sunday you shall go home to see your people."

"It seems to me," said Fred, "that he never ought to go back again; for if there is any improvement in him here, it will be lost in the influences of his home."

"You are wrong there, Fred, for we must make the influence work the other way, and elevate the whole family. You know the Scripture injunction, 'A little leaven leaveneth the whole lump.' This is the leaven, and it is in our hands to apply it properly."

"I fear it will be a desperately hard job," said Fred. "I shall study this specimen for the next few days; and if we can make any impression here, there may be hopes for the rest."

Fred's colonies of bees had strengthened up rapidly after the transfer, and were now crowding him for supers. In preparing them he found Gimp a very handy and tractable boy. When shown the sections he said, "I reckon I knows how tu put them tergether. We kids had a hull lot of them fur playthings arter McBurger was drowndid. Yer see, dad ust ter come around sometimes about sundown and say, "Wall, boys, I'm gettin' pow'ful honey hungry. We'll go over an' rob a skep of bees.' Bob an' I had to do the work an' get the stings. Ef we cried 'r made a fuss 'r tried to git away,

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dad stood thar with a whip ready to kelarrup us. When we got through an' had the honey in the wash-tub he'd tell us tu take the chips, as he called these sections, fur playthings. He was a curis man, dad was."

"I should say he was," said Fred, as through the boy he got another view of the man's depravity.

Matt Hogan would come over as the work on the ranch would allow, and the three made short work of the sections and supers, and the hives were soon supplied.

Fred now turned his attention to the erection of the cabin; and with Gimp's aid he had that in such a stage of progress that on Friday night he returned Gimp to Mr. Buell's, rewarding him liberally with several pieces of silver, which, being the first he had ever earned, gave him such a sense of ownership and of his importance as he had never before experienced.

Fred and nearly all of the men on the Ghering ranch were quite punctual in their attendance at the Sunday-school. The general attendance became larger as the Sundays passed, and Matt Hogan became so much interested that he had gotten together a jolly class of Irish boys, and over in one corner he was teaching them rules of sobriety and good order, "according to St. Patherick," as he expressed it.

When Mr. Buell persisted in putting into practice his preaching, and brought back an improved Gimp with his earnings in his pocket, Mrs. Dawson had faith that her day of prosperity had arrived. Covering his charity with a little diplomacy, Mr. Buell purchased fish of the boys, or wild berries and mistletoes of the girls, and soon had them all well clothed. The better influences thus set in motion had their effect, and the family began to rise to a higher worldly and spiritual level.

Fred's bees made remarkable progress considering the lateness of the transfer, and his sections were gradually filled. The season was prolonged by moisture in the river-bottoms, and by August his forty colonies had increased to fifty, and yielded on an average 100 pounds per colony. The pile of beautiful comb honey in the one-pound sections, all crated and nicely graded into three lots, filled the half of his cabin, and created quite a sensation on the Ghering ranch, and all of the men were getting the bee-fever.

"That vas a case of somedings from nodings," said Mr. Ghering, as he looked wonderingly at the pile of filled crates. "Let me see. You get 10 cents a pound, may be more; 5000 pounds, that make you $500. You vork only two dree months, somedimes go to meetin', go fishin', go to see Miss Buell. That vas so. You vas von rich man. One tausend colonies make $10,000. Mine cracious! Fred, you vas von millionaire —von golt-pug—before you vas d'rty years old. Mine cracious! I vill set out mine whole ranch to bee-hifes;" and Mr. Ghering walked to and fro with his hands in his pockets, grasping his imaginary fortune.

"It is very easy to figure out great profits in the production of honey, but quite another thing to realize them. The greater the number of colonies, the greater the expense; and it has been found that one man with a little help now and then, with a moderate number of colonies, say 500, will realize about as much clear profit in the long run as a person owning a thousand or more. But you can figure up great fortunes now for a few days while I run down to Sacramento with a few samples and try to market it."

Matt Hogan's colony, on another portion of the ranch, under Fred's supervision, had made remarkable progress, and had secured 150 pounds of honey. This was added to Fred's pile, and he said to Matt, "I shall want you to look after your honey and mine while I am away."

"Sure and I will," said Matt. "I will occupy yer cot out here; and while me one eye is fasht asleep I'll keep the other cocked on the honey."

Fred's journey down the river was prosaic enough. Heavy clouds were gathering, with every indication of rain. Everybody on the boat was glum to a painful degree, and Fred was glad to get into the business rattle of the city. He was fortunate to find ready sale for his honey at 10½ cents, and agreed to deliver it within a week. He was loth to leave the city so soon again; but putting business before pleasure, he took the very next steamer up the river. The indications of rain were more pronounced; but wiseacres said it would not rain; or if it did it would be of short duration, for it was a month too early for a general downpour. In spite of these predictions, it did commence to rain; and when Fred landed at Ghering's wharf it did pour. Matt had given faithful attention to the honey. To him every section looked as beautiful and precious as a diamond. The little cabin protected it nicely from the pouring rain.

"And now," said Fred, slapping Matt enthusiastically upon the shoulder, "if it will only stop raining we will have this honey down to the city, and our money for it, in less than a week."

But the rain continued, and the next morning the river commenced to rise.

"We will certainly haf a flut," said Mr. Ghering. "The water-sheds of old Shasta will sent down water enough for a dosen rifers; then look out for the levees further down."

The rain continued without intermission all day, and toward evening the river had become still more swollen, and swept swiftly around the chalk butte, carrying upon its muddy and turbulent surface much debris from far up stream.

"Fred," said Mr. Ghering, "I think you'd

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better come ofer to the ranch to-night. I ton't pelief it a safe blace here."

"Why, bless you," said Fred, laughing, "this is the safest place on the whole ranch. Don't you see, my house is founded on a rock? and this butte has ten feet elevation above all the surrounding country. Your whole ranch would wash away before this butte would move."

"That vas all right, Fred; you vas your own toctor, and you take your own medicine. I only gif you the varning;" and Mr. Ghering went to his own cabin.

Fred stuck tenaciously to his rock and his honey; and Matt Hogan also, having the same confidence in the chalky bluff, cast his lot that night with Fred.

Their animated conversation about honey production and the proper marketing of the same enlivened the evening; but at length the monotonous roar of the river and the patter of the rain had a somniferous effect, and they stowed themselves in their blankets for the night.

They slept soundly, as young men do, until they were both wakened by a sudden tremor and jolt of the cabin. They both sprang out of their cots and out of the cabin with confused exclamations, and the scene that confronted them in the misty dawn sent consternation to their hearts. The raging river had broken through the old channel, and a swiftly running torrent many yards across was between them and the main land. There was no way of escape from the bluff. Again the whole bluff trembled, and the portion on the bend settled several feet. "It is being undermined!" shouted Fred in terror.

"Aye, that is so," said Matt; "an' may the blissed Vargin help us."

Another downward lurch of the great chalk bluff, and the water began to foam over the surface. The hives in the neatly arranged apiary were lifted upon the current, and sent tumbling and knocking together, spilling out the frames and bees, and rapidly disappearing into chaos.

Another lurch, and the little cabin with its precious contents began to swing sidewise. The stout work-bench upon which Fred had so faithfully worked began to swing out. They were up to the knees in water; and Fred, as though suddenly awakening from a stupor, shouted, "Matt, to the bench! to the bench!"

THE FLOOD.

At the same moment he jumped for it. Holding it against the current a moment he whirled it bottom up and shouted again, "Jump, Matt!" and they both clung to it as it shot out into the swirling, tossing river, followed by the cabin and the bursting crates of honey. The bench built of sycamore timbers, with the strongly braced legs, made a substantial raft for ordinary waters; but now even its strength was severely tested. Careening to one side, shooting like a log, water dashing violently over it, and, more dangerous still, the rushing and grinding debris alongside them; but amid the roar and tumult they clung to the braces with the despair of lost men.

Gnarled roots of trees would suddenly thrust their black specter-like arms out of the water,

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and as suddenly vanish. The raft itself was lifted and nearly upset by them. Under the exciting strain of the moment Fred's imagination was getting distorted. He thought those vicious roots were Dawson's arms grasping for him, and he clung closer to the braces.

"Matt! O Matt!" he shouted in terror, as a huge root swung across the end of the raft; but, too late; faithful Matt Hogan, with a vain gurgling cry for help, was swept into oblivion. The same avenging arm crashed its way along toward Fred.

CORRECT BEE-SPACE.

Question.—What is the exact space required for a worker-bee to pass through, and that the queen and drone can not go through?

Answer.—It is no trick at all to exclude drones and let the worker-bees pass, as any thing from $\frac{5}{32}$ of an inch up to nearly or quite $\frac{7}{32}$ will do it. But when it comes to a space which will allow a large worker to pass and stop a small queen, we find that it needs a nicety of workmanship not found in the average bee-keeper. Queens and workers vary very much in size, and I have had several queens which would squeeze through an opening which many workers considered an effectual barrier to themselves, preferring to stay outside the hive rather than to try to go through the same. By most bee-keepers $\frac{5}{32}$ of an inch, or the merest trifle less, is considered to be the right size of perforation to use for all queen-excluding purposes; but quite a few say they find $\frac{3}{16}$ of an inch to work better with them than a narrower space, as it practically excludes all queens, with rare exceptions, while it does not bother the workers to any perceptible extent. Some seem to think that a laying queen can not pass through a space which will allow a virgin queen to go through quite comfortably; but I think this a mistake, as all of my experience goes to prove that any laying queen can pass through the same space when being fertile that she could pass before she became fertile; for it is the thorax which tests the ability of the queen to pass through a certain space, not the abdomen, as some suppose. The abdomen of any bee is soft and yielding, while the thorax will not give a particle from any pressure the subject itself can bring to bear upon it; and as the thorax does not change in size any, through the queen becoming a layer of eggs, it makes no difference whether the queen is laying or not as to the size of perforation she can actually pass through. I say *actually pass through*, because there is a great difference between the determination of a queen to *squeeze* through certain places, as a queen when laying any thing like her maximum number of eggs rarely tries to leave the brood-chamber proper; and if she does so try it is only in a feeble way. But let any queen which has been laying one, two, or three years get into such a state of excitement that she will go to piping and running about in a way similar to that of a virgin queen, and she will make as determined efforts to pass through any small space as she ever did in her life. To sum up: My experience has been that a properly developed virgin queen will very rarely get through $\frac{3}{16}$ of an inch. Worker-bees can crowd through $\frac{5}{32}$ of an inch; but if any thing short of that it becomes such hard work that the excluder is a nuisance to themselves and to their keeper. A space of $\frac{11}{64}$ of an inch will allow most workers to pass with simply brushing the hairs on their backs, while it practically excludes all queens, and certainly all drones; hence this latter size is my choice for a queen-excluder. Many of us would be pleased to hear from the managers of GLEANINGS on this point.

SUB-EARTH VENTILATION.

Question.—How can I secure sub-earth ventilation in my cellar, which is on a level lot? This cellar in which I wish to winter my bees the coming winter is very damp, and the building-site is on a very level piece of land. Can I get a current of air to enter the cellar by laying the six-inch tile on a down-hill plan, and sink a hole four feet square at the outlet of this tiling?

Answer.—The only difficulty I see with the plan given is lack of drainage. What will there be to hinder water coming into the hole you refer to whenever it rains during winter, or when it becomes warm enough to thaw the snow? Unless some means is provided to do away with this water it will be apt to come into the hole so as to cover up the end of the tiling just at a time or the times when your sub-earth ventilator would be of the most necessity for the welfare of your bees? Then there is another thing which perhaps you have not thought of: A sub-earth ventilator will do no good unless you have some means for the warm air to escape from the top of the cellar or room containing the bees. And even with a pipe at the top to let the warm air out, air will not circulate to any extent during a time when the temperature outside is the same as or warmer than that inside; and such times as these are just when you need fresh air the most in your cellar, if fresh air is *really* necessary, by special means, in a cellar for bees. If you can so arrange that a three-inch pipe can go from near the bottom of your cellar up into the pipe from the stove which you have a fire in every day, then you can be sure of a draft which will change the air in your cellar any day during winter, no matter how warm or how cold. In this three-inch pipe you should have some means for regulating the amount of air that is to pass through, from the full amount to none at all, as you and the bees desire. Your

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sub-earth ventilator should also be below frost, and from 100 to 150 feet long, so that the frosty air may be heated so as not to send a chill over the cellar when it enters. But let me whisper a word or two: After you have tried this sub-earth ventilator, arranged as above, for a winter or two, turning the regulator in the pipe from one to ten times a day, you will soon find yourself turning it off or shut the most of the time, till finally you will leave it shut altogether; for all of my experience goes to prove that James Heddon was right when he said, "Keep the temperature of your cellar up to 45° Fahr., and you need have no fears of dampness or bad air. If at any time the cellar gets too warm, ventilate it at the top." I quote from memory, as I have not time to hunt the matter up. This and my own observation was what led me to let my sub-earth ventilator fill up, and dispense with the upper one entirely. But if any person has fears in this matter, the proper way is for him to test the thing till he is satisfied.

Borodino, N. Y.

[Sixteenths and thirty-seconds are hardly small enough to give the exact size best adapted for excluding queens, but not too small to hinder workers. Our present zinc, by a micrometer measure, is $\frac{165}{1000}$ of an inch wide. Our first zinc had the perforations $\frac{170}{1000}$; but it was found that occasionally a developed queen would go through; but since we changed to $\frac{165}{1000}$ the zinc has given universal satisfaction. It has been pronounced right by such authorities as P. H. Elwood and Capt. J. E. Hetherington. Dr. Miller did report that he had a queen go through this size; but the queen must have been undersized around her waist or thorax; for the doctor sent a strip that she went through, and this measured $\frac{165}{1000}$. Smaller than this size hinders the workers greatly, especially when filled with honey. I tried, very thoroughly, zinc $\frac{160}{1000}$—a difference, you will notice, of only five one-thousandths—and it bothered the workers not a little.—ED.]

A LEAD FRAME-SPACER.

Mr. Root:—As Dr. Miller is anxious to have some frame-spacers, I thought you might be interested in my style of spacer. They are made of lead—the softer the better; are cone-shaped, and are satisfactory so far as I have used them. The base is as wide as the side-bar, and the top is a little wider than the nail-head. In the top of the cone the nail-head is sunk into the lead by reaming it out for the nail. I think you will understand from the crude outline I have attempted to draw, that you put the head on the nail, and have the two separate. The lead is the head, and you simply drive the wire nail through it.

The advantage of my spacer is this: The head will not catch and hold fast in the wire of an extractor. The nail being covered by a soft metal like lead, if, by accident in uncapping, the honey-knife slips and hits the spacer, no damage is done to the knife. The lead may be cut, but it does not damage the spacer either. Only a very hard knock will cut deep enough to hit the nail. They can be used on any frame, and made any length. The ones I used I ran in a mold of wood. A mold like a bullet-mold, to run 10 at a time, could be manufactured by your company, and sent out to the bee-keepers, and they could run them themselves; or a machine like a type-machine could make them by the thousand. You could sell them by the pound, like shot. Any bee-keeper could buy his wire nails at home. The base of the cone of my spacer should be a little hollow, to fit down and have a bearing surface all around. They could be made of pressed paper, and it might be better than lead if it is not too expensive. J. R. CHALKER.

Empire, Or., Sept. 29.

[Your spacer is probably a good one, and no doubt most bee-keepers can make them in the way you describe. But a very much cheaper article is a furniture-nail. These can be bought with heads very much like your lead spacer.—ED.]

MAPLE-SUGAR MOTH-WORMS; HOW TO GET RID OF THEM.

I have discovered something of interest to maple-sugar makers and dealers. Honeycombing of maple sugar has been a problem as yet unsolved by many of us. This is a term we have applied to the soft holes that have appeared in maple sugar, especially in summer. I took two pieces of badly honeycombed sugar out of a grocer's show-case, and with the naked eye I saw the little fellow that does all the damage, crawling about. He is a very lively little rascal, and after a while he makes a chrysalis and goes into the butterfly state; and I have seen these silky houses and the webs they have spun. So the cause of all the trouble is a moth that lays eggs. They hatch into worms, and they eat the sugar and burrow in it.

Now for a remedy. I am informed that bisulphide of carbon put into a saucer, and allowed to evaporate in a tight box with the sugar, absolutely kills all worms, etc., except unhatched eggs. This stuff is very inflammable; and when buying you should tell the druggist how you intend to use it, and he will give you valuable information, and help you to avoid accidents. On exposure to the air, the drug all evaporates and leaves no smell.

Chicago, Ill. HERMAN F. MOORE.

[Mr. Moore has sent us, in a vial, one of the worms. It is ¼ inch long and about $\frac{1}{32}$ inch in diameter, yellow in color, with a brown head. In light-colored sugar it might very easily escape notice.—ED.]

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RIVAL BEE-PAPERS AND THEIR POLICY.

Two rival editors of two separate rival bee-periodicals took the train at Chicago, rode in the same car, slept in the same berth, in the same bed, ate at the same tables—in fact, were together much of the time for a whole week, and did not even quarrel, nor were they jealous of each other in convention. Suppose, for instance, that the two aforesaid editors were not on friendly terms; that they went to the convention on separate roads; that they sat on opposite sides of the convention room; that whenever one proposed a policy the other would oppose it. The actual situation at the Lincoln convention — in fact, at every other in later times—has been the very opposite. At two different conventions the editors of the *American Bee Journal* and GLEANINGS have sat in the same chair. A very few delight in calling this condition of things "mutual admiration." Call it what they may, it is doing tenfold more for the bee-keeping world than the other policy could give.

GOVERNMENT AID AND APIS DORSATA.

AT the Lincoln convention a resolution was passed condemning the action taken by the Erie Co., N. Y., Bee-keepers' Association, recommending that the general government send an expedition to the far East to secure *Apis dorsata*. This action of the North American was based on the ground that it was unnecessary and impractical; that government aid, if any be secured, should be diverted in other directions. Some of my friends at the convention knowing that I had expressed myself in a similar way thought that on page 528 of GLEANINGS for July 15 I had changed my mind. A careful reading of the article by W. K. Morrison, and of the footnote in question, will convince them that I did not make a "flop-over." I was at first opposed to the expense on the part of the government, and am yet; but our correspondent, Mr. Morrison, has a scheme for getting these bees through the influence of friends high in authority, from the different governments of the world. His plan is, in a word, to secure the coöperation of leading scientists, men of means, steamship companies, and diplomats, of the world. Financial aid from this country he considers out of the question.

"THE USE OF DRAWN COMBS; SOME DRAWBACKS."

IN an article under this heading in the *American Bee Journal*, Mr. E. T. Abbott, the writer, says: "There are two drawbacks in the use of drawn comb, which, in my opinion, can never be overcome. One of these is the tendency of honey to sour when it is put into the combs so rapidly;" and "the other and perhaps most serious objection is that one can never secure as delicate and friable comb in this way as he can when the bees build the comb as they store the honey." As to the first objection, I can not see why that would not apply with equal force to honey stored in extracting-combs. I have always supposed that liquid honey from Missouri was as good as that from any other locality. If it is not, then Mr. Abbott's objection has force only in his State or locality. As to the second objection, those of us who have advocated the use of drawn combs, or, rather, called attention to the advantage that would accrue from their use, have had reference, not to *full-depth combs*, but to *comb leveled down* with the B. Taylor leveler—at least, that was what I meant. This would make the cells anywhere from $\frac{3}{16}$ to $\frac{1}{4}$ in. deep. I believe it is generally admitted that unfinished sections of full depth, when filled with honey the second time, and capped over, do not make first-class comb honey. B. Taylor's idea was, as I tried to point out, to level these combs down to a point where bees would have to rebuild and at most leave only the base or septum and a part of the original cell-wall as made the year previous. Such rebuilt comb is as "delicate and friable" as any. I have seen and sampled just such comb honey, and it is fully equal to any drawn out from foundation that I ever saw; therefore I do not see that either one of Mr. Abbott's objections stands in the way of the drawn combs that I referred to at least.

"HONEY AS FOOD; WHY IT SHOULD BE EATEN."

A VERY interesting article bearing the above caption appears in the *American Bee Journal* for Oct. 8, by Prof. A. J. Cook. After discussing the various kinds of foods necessary to make life and health, the professor speaks of the marked difference in the physiological effects of cane sugar and honey. "Until a comparatively recent date," he says, "cane sugar was unknown, if we except maple sugar. . . . Thus in the olden time honey formed almost the exclusive sugar. . . . I have been told by some excellent physicians that they thought some of the worst diseases of modern times, especially Bright's disease of the kidneys, were more prevalent than formerly, and they thought it due to the large consumption of cane sugar, which was all unknown in the long ago. . . . The digestion of food is simply to render it osmotic, or capable of being taken through an organic membrane — capable of being absorbed. We eat starch. It is non-osmotic, and would lie in the stomach and intestines indefinitely, except that by digestion it is changed to a glucose-like sugar. . . . Cane sugar, though somewhat osmotic, is not readily absorbed." Then he goes on to show that nectar is digested or transformed by the bees, making it what we call honey,

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and this makes it a safer food than cane sugar. Again, he adds: "There can be no doubt but that, in eating honey, our digestive machinery is saved work that it would have to perform if we ate cane sugar." And then he concludes by stating, on the authority of physicians, that "the large consumption of cane sugar by the nineteenth-century man is harmful to the great eliminators—the kidneys—and so a menace to long life and health."

Prof. Cook is doing a good service in preaching the good doctrine that honey is a far safer and much better sweet to eat than the modern sugars of the day. Indeed, I *know* of some physicians who are recommending the use of honey in place of sugar to their patients who can't eat cane sugar. I think it would be well for those who peddle honey from house to house to emphasize these facts to their customers.

THE MANUFACTURER AND THE DEALER; INDISCRIMINATE CREDIT.

I HEARTILY indorse the paper that was read by Mr. E. T. Abbott in defense of the dealer in apicultural supplies. He made the point that he is a producer just as truly as is the man who keeps bees and markets honey, or the owner of a factory who takes boards and makes them into hives. He deprecated the tendency on the part of the manufacturers to bring those dealers into unfair competition with themselves (the manufacturers), owing to the pressure of other competitions from other manufacturers. More than one dealer had bought early in large quantities; and, before the season was out, had found that the firm from whom he secured his goods, owing to dull trade, was offering the same goods, *in small quantities*, for less than he had paid for them by the carload. Continuing, he said: "There is no greater curse to modern society than the miscellaneous-credit system. Credit may be a good thing; but I am honest in the opinion that it would be a blessing to all if no man or woman could get any thing for consumption before paying for it. . . . A good motto to adopt, especially for young people, is to 'pay as you go;' and if you can't 'pay,' don't 'go.'"

By the way brother Abbott looked across the room at me I concluded he was expecting an onslaught from my quarter; and as what he said accorded with my notions I concluded to say nothing. He finally said he would like to hear from E. R. In reply I indorsed the paper entire; and that, while we (The A. I. Root Co.) might have been guilty, in some cases, of unfair competition with the dealer, it was not intentional; that, as brother Abbott has been smarting under this kind of competition; and as he had bought of other manufacturers, I took it that the "other fellow" was the one who had been giving him the occasion for his remarks. However, it will do none of us any harm to take the dose of medicine, even if we do not like the taste of it.

I wish especially to indorse Mr. Abbott's point that *miscellaneous* credit is a real damage to society. It is very much easier to buy goods before the money is in hand than to pay for them after the goods are received. The dealer, as well as the honey-producer himself, should be sure that the wherewith will be in hand at the time the bill is due. The surest way to be sure is to have the money, not in *prospect*, but ready to pay over before the order is made.

HON. E. WHITCOMB.

ONE of the men who figured prominently at the Lincoln convention was Mr. E. Whitcomb, of Friend, Neb. He was born in 1843, in Susquehanna Co., Pa., and at the age of ten years his parents moved to Lee Co., Ill. On the 25th of Aug., 1861, he enlisted in Co. A, 34th Illinois Infantry, in which he participated in all the campaigns in Kentucky, Tennessee, and Georgia, taking part in upward of 50 engagements, including Sherman's march to the sea, and the march through the Carolinas. He came to Nebraska in 1870, and settled on a homestead adjoining what is now the city of Friend.

As a bee-keeper, he has been a leader in his State. For the past eight years he has filled the position of president of the Nebraska Bee-keepers' Association, and has had charge of the apiarian department at the Nebraska State Fair for the past 12 years. At first the exhibit could have been hauled in a wheelbarrow; but now, I am informed, it requires the largest and best arranged honey exhibition hall to be found anywhere in the world. I have already secured a photograph, and will give to our readers the picture of this hall, in a future number. Mr. Whitcomb also gathered together and made

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the Nebraska exhibit at the Columbia exposition, where he secured for his State four medals and diplomas.

In 1877 he was a member of the lower branch of the State Legislature, and is now actively engaged in political work. I believe he is a candidate for Senator from his district, and bee-keeping friends told me that he had more than an even chance of securing the honor.

Mr. Whitcomb is of large physique and commanding presence, and one also who wields considerable influenee. He is editor and publisher of the Friend *Telegraph*.

NEBRASKA AS A HONEY STATE; HEARTSEASE, ETC.

BEFORE I attended the Lincoln convention I had the impression that Nebraska as a honey State ranked only as second grade; but on going into the State I was agreeably surprised to learn of its great resources, not only in the line of agriculture, but of its possibilities in the line of great yields from single colonies as well as from whole apiaries. If it is not already, it soon will be one of the great honey States. Beautiful in climate, rich in soil, peopled with the best blood from all over the country, a grand future is in store for it.

One thing that struck me on the way was the immense cornfields. A five-acre field in Ohio seems like a large one; but it was no uncommon sight to see forty or fifty acres of corn as we sped along on the cars; and I was told that some fields had as high as 100. And such corn!

But the thing that interested me most was the large amount of heartsease that we could see all along the waysides, in the stubble-fields, everywhere it could get a foothold. I was told that there were hundreds of acres of it, and no bees in reach to gather its nectar.

The heartsease of the West is very like and perhaps the same as smartweed of the East. The latter is a low-growing, sprawling plant, which probably in Nebraska would grow into a large vine, and be called heartsease. Here in the East it rarely if ever yields any honey—at least, not enough to make a showing in the hive. As announced in our last issue, Mr. Delong stated before the convention that he secured as high as 450 lbs. from a single colony. Indeed, if I understood him correctly after the convention, he had two such colonies that gave such a remarkable record; and his average was 250 lbs. All of this was from heartsease. Other bee-keepers reported heavy yields from the same source. The extracted heartsease that was on exhibition was of a beautiful rich amber. The flavor of it was not just to my notion; but very many do like it; and while it does not rank alongside of white clover and other qualities of white honeys, it brings a fairly good price. Besides the heartsease, alfalfa and sweet clover should be given prominence in the State.

I noticed that the wild sunflower—a very small plant with us in Ohio—perhaps three or four feet high, was six and eight feet high in Nebraska, and every thing else seemed to be in like proportion.

Right here I can do no better than to make a couple of extracts from a paper read by Mr. L. D. Stilson, editor of the *Nebraska Bee-keeper*, before the convention:

> For several years past the great bulk of our honey has been produced from heartsease, a plant something like the smartweed of the East. It grows in every waste place, it springs up in every stubble-field, and, no matter whether it is dwarfed by drouth to a tiny plant of a few inches, or whether watered by copious showers, and grows to the height of a man, it always blossoms full and is always laden with honey.
>
> The climate of our State is such that plants secrete very rich nectar, so that the bee can gather it; and, after storing in the hive, it can at once be sealed over, retaining to a great extent the aroma of the flower from which it was gathered. A few years ago we extracted from one super clean, returning the combs, and in four days we extracted fifty pounds again, nearly all sealed, and weighing fifteen pounds to the measured gallon.

By consulting Gray's Botany I find that heartsease belongs to the violet family—a very small one. Most of the heartsease bloom seemed to be of a purplish red. I saw some in the field that was pink, and also a few blossoms that were pure white. The smartweed of Ohio is of a purplish red.

P. S.—While conditions are inviting in Nebraska, especially so last season, don't "pull up stakes" without fully investigating. Take the time to write, and if all looks well go yourself first. It is but fair to state in this connection that Nebraska has had its drouths, and is liable to have them again. Then there are the heavy winds of the prairies; and then, too, the wintering problem is not solved by any means.

BEES AND GRAPES; A REPORT FROM PROF. W. J. GREEN, OF THE OHIO EXPERIMENT STATION.

YOU will notice by referring to pages 647 and 706 that several of our friends around Medina have claimed, as they have several seasons before, that the bees were destroying their grapes. We tried to convince them it was a mistake, but it was a pretty hard matter to convince at least some of them. Finally my esteemed friend Mr. George Thompson (the one who first helped me to start in bee culture, see introduction to A B C book) told me the bees were at work on his grapes in very great numbers. But he is too careful a man to commit himself fully on the start. He said he was going to make a careful investigation in order to see whether the bees were really guilty or not. A few days later he told me he had found the thief. He said a little bird was hopping from bunch to bunch, making needle-like perforations so quick that he could hardly see how he did it; and that, after the bird, came the bees. We expressed much interest, and asked him a great many questions about the bird. A

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few days ago he came into the office triumphantly, bringing us the bird alive and in a cage. He said it became so tame that it actually came in at the open window, and began its work on the grapes where they stood in a basket on the table. They captured the bird and brought him down to us. We forwarded him at once to our Ohio Experiment Station; and Prof. Green, the horticulturist, has given us the following very full and complete paper in regard to the matter:

Mr. Root:—Yours of the 14th, with the bird, is at hand. It is a goldfinch, or wild canary, commonly called. I have no doubt about its guilt, but I am sure that there are other birds equally bad. We had considerable trouble with birds one season in Columbus, and, if I remember correctly, it was the bluejay; and I am credibly informed that the turtle dove is a culprit also. I believe that, if you were to inquire of naturalists throughout the country, the list of guilty birds would be found to be much longer than most people suspect.

I have noticed the controversy concerning the bees and grapes, and thought of writing you about the matter, but did not, because it seemed to me that, if people would observe a little, there would be no grounds for controversy.

Grapes have cracked very badly this season—that is, some varieties have, and there is more or less of cracking every year. One gentleman told me that the grapes which he had inclosed in paper sacks had cracked also. This proves that bees did not do the work; but such proof is hardly necessary, for any one can easily convince himself that grapes crack open when the weather is just right. A crack is so unlike a puncture that no one need be told the difference. So, also, the bill of a bird makes such a characteristic mark that no one need mistake it for any thing else. Grape-growers are so familiar with these things that I do not think they very often lay the blame to the bees. Certainly no one who has worked with grapes a few seasons ought to blame the bees when the causes named are so evident. Of course, it is sometimes rather unpleasant to have the bees swarming about the grapes; but it is just as well that they get the wasting juices, and better, in fact. I have known bees to be very troublesome about overripe raspberries, but it was the condition of the fruit which attracted them as in the case of the grapes.

There is one reason for the discrepancy in the opinions on this matter which I may point out, for it comes in my line of work. Varieties of grapes differ greatly in their susceptibility to crack, and birds prefer some above others. Thus the bees may be working on one person's grapes and not on those of his neighbors. If the man who is losing his grapes lives near an apiary he may rashly conclude that he is suffering because the bees find his grapes convenient. I have often heard this alluded to in a way that showed that the opinion was held that the nearness of the bees proved their guilt. The simple fact that a man who lives near where bees are kept is losing his grapes proves nothing whatever against the bees.

I have also heard it said that bees work on grapes when there is a scarcity of honey, and the fact cited to prove their guilt. It may be that they will work more freely on grapes when they do not find honey plentiful than when it is abundant. I am not able to argue the question from the bee-keeper's standpoint; but as a horticulturist I can say that it is nonsense to claim that the cracking of grapes is coincident with the scarcity of honey.

To my mind it seems about as reasonable to accuse bees of breaking open grapes as to suppose that they will make holes in maple-trees to get the sap. Bees like maple sap, and at times they are quite troublesome about the camp; but no one would indulge in such an absurdity as to claim that they have any thing to do with making the sap flow. It may not seem so absurd to most people to claim that they open grapes; but those who know most about bees find it about as hard to understand how bees can break the skin of grapes any more successfully than they can bore through the bark of a maple-tree.

I used to amuse myself examining bees, flies, and various insects under the microscope, but I never discovered that the honey-bee is any better equipped for puncturing grapes than the housefly. It is common sense, when looking for the reason of things, to assign the force to the nearest apparent cause. If I were looking for the cause of any unusual behavior in a tree or plant I would first examine carefully all of the surroundings, and not go over into the next field to find that which reason would tell me must be close at hand, nor should I attribute to the moon or stars that which abundant experience convinces me must belong to the earth.

Now, we know that birds puncture grapes, and in some cases ruin the crop; and we also know that grapes crack, even when tied up in paper sacks; but we do not know that bees have the power to make a hole in the skin of the most tender grape. Why, then, go so far out of our way to prove the bees guilty? If we are going to abandon common sense in the matter, why not lay it to the moon at once? The moon is said to have a powerful effect in warping shingles, and can even tear down a rail fence and pull potatoes out of the ground. If it can do these things, it seems strange that no one has discovered it can burst the skin of grapes.

Wooster, O., Oct. 16. W. J. GREEN.

The picture and description of goldfinch, in the Standard dictionary,* agrees with the specimens we sent, or with the ones we have subsequently captured. The goldfinch has more yellow, and the bill is short and blunt, while that of the little culprit is perhaps ½ inch long, and very sharp. With this exception it looks like the goldfinch. Is there not some mistake, Prof. Green?

AMALGAMATION AT LINCOLN, "CRAZY SHOTS," ETC.

IN the paper by Thomas G. Newman, read at the North American convention at Lincoln, he used this language:

The "nonsense" which has been published like this: "I say, away with amalgamation, and let the Union set about to reorganize itself as soon as it can," is simply ridiculous. It has been a success from its very inception. It asks nothing but good will from its neighbor—the North American Bee-keepers' Association—and can live and prosper, doing its own work—that work for which it was created—without losing its head, its temper, or its understanding. Its uniform success and its excellent financial condition are something all should be proud of instead of hurling at it such crazy "shots" or empty or cracked "shells" as the foregoing quotation, and calling it a "poor fizzle," etc.

I am a little surprised that the old wheelhorse of the Union and of the *American Bee Journal* should fall into the error (unintentionally perhaps), of giving *a part* of a quotation or just enough of it to mislead. The language that Mr. Newman refers to appears on page 609 of GLEANINGS. This is what I actually said:

The Canadians are away ahead of us in that they have a flourishing society almost national in its character, but which really covers Ontario only. Let us on this side of the line have something big enough to cover the United States only, and one that will answer the purpose of the two existing societies. Having two, as we now do, is expensive and unnecessary while it is perfectly evident that one could do the work of the two. Personally I should be glad to see them amalgamated, providing disagreeable complications would not arise. As there is a possibility of that, I say away with amalgamation, and let the Union set about to reorganize itself as soon as it can.

The reading of the whole shows that the part

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*The ornithology in this work was edited by an expert, and I assume that the cut and description is reasonably correct.—ED.

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of the quotation which Mr. Newman gives does not fairly set forth my opinion, or, rather, he leaves out the proviso upon which the proposition, to which he takes exception, hinges. All through the editorial I expressed myself as in favor of amalgamation; but I was afraid that, if we tried to force it, we should accomplish nothing. The point I desired to make was that I was in favor of *something* that would take hold of the matter of adulteration and dishonest commission men; and I thought that something ought to embody the features of the two existing organizations, whether amalgamation were effected or not. When we got down to business, there were "no disagreeable complications," as I at first feared; neither were there "two distinct parties arrayed against each other," as Mr. Newman seemed to feel that there was; and as I had all along been in favor of amalgamation, *providing* there were no "disagreeable complications," it was not at all inconsistent in me to help it along all I could, which I did in the capacity of the committee which was appointed—made up of Dr. Mason, Mr. York, and myself.

Mr. Newman implies that I called the Union a "poor fizzle;" but I can not see that I anywhere so styled it. I have all along insisted that the Union was more national than any thing else; and when I used the term "poor fizzle"—see last sentence of first paragraph of the editorial in question—I referred to *any* organization that was trying to cover one or more countries, and making a failure of it. I did not have in mind the Union at all, because elsewhere I referred to it (the Union) as a grand success, except that I thought it ought to enlarge its field of operations by taking in the questions of adulteration and dishonest honey-buyers, which it could do under its constitution.

The constitution formulated by the committee above mentioned, as stated in our last issue, was read and adopted article by article, some being changed by the convention after discussion. I am sure the General Manager will indorse it, and the Union will adopt it with little if any change. When so adopted by this latter organization the new Union will be practically the same as the old, with the additional feature of having annual meetings, the president and other officers of the old North American being elected by the members present, and the General Manager by the vote of all the members, whether present or not, this latter vote being taken by ballots received by mail.

The following is the constitution as it was read and adopted by the North American, and which that body now submits to the Union:

The committee on union and amalgamation reported as follows, through Dr. A. B. Mason:

1. This organization shall be known as the United States Bee-Keepers' Union.

2. Its objects shall be to promote and protect the interests of its members, to defend them in their lawful rights, to prosecute dishonest honey commission-men, to enforce laws against adulteration of honey, and to advance the interests of bee culture in general.

3 Any person can become a member by payment of membership fee of $1 annually on or before February 1, to Secretary or General Manager, except as provided in section 8 of article VI.

Those who are members of the N. A. B. K. A. and N. B. K. U. when this constitution is adopted by each organization, shall be members of this Union.

4 The officers of this Union shall be a president, vice-president, secretary, and a board of directors, which shall consist of a general manager and six directors, whose term of office shall be for one year, or until their successors are elected and qualified; and the director receiving the largest number of votes shall be chairman of the board of directors. Those who are officers of the National Bee-keepers' Union, when this constitution is adopted by said Union, shall constitute the board of directors of this Union until their successors are elected and qualified.

5. The President, Vice-president, and Secretary shall be elected by ballot by a majority of the members present at each annual meeting of the Union, and shall constitute the executive committee. The board of directors and General Manager shall be elected by ballot during the month of December, of a majority of the members voting; blank ballots for this purpose, accompanied by a full list of the membership, which shall be mailed to each member by the General Manager; and said ballots shall be returned to a committee of two members who shall be appointed by the executive committee, whose names and postoffice address shall be sent to the General Manager by said executive committee on or before the 15th of November, preceding the election. Said committee of two shall count the ballots and certify the result to the General Manager during the first week in January.

6. It shall be the duty of the President to preside at the annual meeting of the Union, and perform such other duties as may devolve upon the presiding officer.

The Vice-president, in the absence of the President, shall perform his duties.

The Secretary shall keep a record of the proceedings of the annual meeting; receive membership-fees, furnish General Manager with names and postoffice address of those who become members at the annual meeting; pay the treasurer all moneys left in his hands after paying expenses of the annual meeting, and perform such other duties as may be requested of him. He shall receive such sum for his services as may be granted by the board of directors, not exceeding $25.

The General Manager shall be secretary of the board of directors, and keep list of names of members and addresses, receive membership fees, and be treasurer of the Union. He shall give bond in such amount and with such conditions as may be required and approved by the board of directors. He shall also send each member a statement of the financial condition and report of work done by the board.

The board of directors shall determine what course shall be taken by the Union upon any matter presented to it for consideration and does not conflict with this constitution, and cause such extra but equal assessment to be made on each member as may become necessary, giving reasons to each why such is required, providing that not more than one such assessment be made in one year, and to an amount not exceeding a membership fee, without a majority vote of the members.

Any member neglecting or refusing to pay said assessment as required by the board shall forfeit his membership and right to become a member of the Union for one year after said assessment becomes due

The board of directors shall pay the General Manager such sum for his services as the board shall deem proper, but not to exceed 20 per cent of the receipts. Said board shall meet at such time and place as it may decide upon.

7. Funds may be used for any purpose that the board may consider for the interest of its members.

8. Any vacancy occurring in the board may be filled by the executive committee, and any vacancy in the committee may be filled by the board.

9. The Union shall hold an annual meeting at such time and place as may be agreed upon by the executive committee.

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10. This constitution may be altered or amended by a majority vote of all members, providing notice of said alteration or amendment has been given at a previous annual meeting.

LINCOLN CONVENTION REPORT.

My report, as will be seen, of the Lincoln convention will be made up of fragments here and there. A few of them appear in this issue, editorially and elsewhere. The only essays or papers that I publish in full are the poem by Eugene Secor and a paper by Mr. York, of the *American Bee Journal*. The first named was encored so heavily by the bee-keepers that I thought our readers would like to see what it was. The second is a paper on a very important subject, and I hardly need to say that I indorse Mr. York's ideas. Here are the poem and essay in question:

SECOR'S REPLY TO ADDRESS OF WELCOME AT LINCOLN, NEB.

We're glad to be invited to the "wild and woolly West,"
Where the cowboys roam the country with neither coat nor vest
(According to the silly claim of many Eastern folk
Who never seem to comprehend a breezy Western joke).
But some of us have "traveled"—in fact, been here before;
Have felt the grip of Western hand extended at the door.
We don't suppose that Indian raids are every-day affairs,
Or that the hungry prairie-wolf will snap us unawares;
And neither do we look for men in this new prairie State
Who lack in kindness or in worth because 'twas peopled late.
We know that all of virtue and hospitable cheer
Are not confined to older States—they've taken root out here.
The hearts of these our brethren we should expect to find
Responsive as their generous soil—the richest of its kind.
Boast not, ye Yankee farmers, pent up between the hills,
Of the greenness of your verdure or the music of your rills;
Here broad and fertile acres wait for millions yet to be—
Await the march of empire west—the bivouac of the free.
These prairies, like an ocean vast, in billowy grandeur roll,
A blessing in each valley and a promise on each knoll.
There's food enough in this rich soil, stored up long, long ago,
For ten times ten the present needs of population's flow.
So if the hive of industry be overcrowded east,
There's room for several swarms out here ("priority rights" released).
But from an economic view my mental Kodak shows
No drones need be imported here—the *worker* is what "goes."
This climate is a little "hard," so I have been informed,
On idlers; and if such migrate they'll wish they'd never swarmed.
I said that none but *workers* are in demand out here;
Perhaps you bee-men present may think it some what queer
That *queens* are not a vital part of such a colony.
They are, my friends, important; but don't you clearly see
Nebraska queens are just as good--and acclimated too—
As any foreign race or blood, albeit old or new?
So if you've not contracted, and you chance to find one here,
She's warranted, I'll venture, to be without a peer.
'Tis Eastern blood and Western vim that make the world go round;
In other words, they make things "hum"—to us a cheerful sound.
The greeting which your speakers give is prized by us bee-men;
We take most kindly to sweet things—perhaps we'll come again.
We'll not, I hope, inflict a sting for kindness you have shown;
Such honeyed words, such royal cheer, demand our love alone.
We represent a brotherhood whose craft, for ages past,
Has been esteemed a worthy one because their lot is cast
With those who in the field of toil create the world's great wealth,
And at the same time lessen not its pleasures or its health.
The sweets of life we gather in; we garner nature's waste;
We horde the nectar from the flowers to cater to man's taste;
We fructify, with busy elves, the orchard and the field;
The spoils we get are but the fee for making blossoms yield.
Without our wingéd wizard-priests that marry d stant flowers,
This earth might be a desert waste where now are fruitful bowers.
Bespeak we then for these our aids, and keepers too, as well,
The word of praise that worth demands—that worth their works do tell.
I notice that *you* have a bee, quite common everywhere—
At least in Uncle Sam's domains she is by no means rare;
And, like the "busy bee" of song, she buzzeth night and day
(In bonnets mostly worn by men) in a most bewitching way.
The "presidential bee" is here as vanguard of our host,
With *silver* bands instead of gold—the marks we prize the most.
In this campaign 'twixt white and yellow we look with longing eye
For some bright ray—some star of hope—from out the murky sky.
For, whether gold or silver wins, *we* want *prosperity*.
We need the *factory's* busy hum to stimulate the bee;
For people eat best when they work; and bees increase and thrive
When some one buys the royal food found only in the hive.
The city where now congregate the chosen of our clan
Was named for one immortal in the heart of every man.
Immortal may the friendships be which on this spot we form,
That, like the granite hills of God, shall stand both time and storm.
And may the bond of union between the West and East
Grow stronger as the years go by and each returning feast.
Fair city of this western plain the salted seas between,
Gem of mid-continent beauty, of prairie cities queen,
We bid thee prosper and grow strong, and, like that giant name
Whose hallowed sound is Freedom's boast, be ever known to fame.

HONEY COMMISSION-MEN AND ADULTERATION.

The subject assigned to me is not only a very important one, but is really a double one—though in some instances as closely united as were the once famous Siamese twins, for are not honey commission-men sometimes also large adulterators of the sweet product of the bee?

It may be, however, that I can make myself better understood, and also do better justice to my double subject, if I speak of the honey commission-men, and then follow with a few words on that modern abomination—the adulteration of honey.

First, I want to say that I do not for a moment question the honey commission-men's right to live. They are a necessity--I mean the *honest* honey com-

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mission-men. The other kind may be a necessary evil, though I am inclined to doubt it.

I sometimes think that honey commission-men are just what bee keepers make them, or allow them to become. But some of them, I must confess, are as "wise as serpents" and fully as harmful. It is surprising how easily otherwise wide-awake bee-keepers permit themselves to be "roped in" by flaming honey-circulars, sent out by new and untried honey commission-men, quoting high prices for honey. If those who receive such consignment-soliciting circulars would stop to consider for only a moment, it seems to me they would be wise enough to know that any quoted prices higher than those given in the market columns of the bee-papers, must be entirely fictitious, and wholly unreliable—simply thrown out as tempting "bait" to catch the unwary and easily duped.

I know that we all like to get high prices for our honey or other products, and yet we should not be such blanked fools as to suppose that a *new* honey-commission firm can secure better prices than an *old* firm that perhaps has worked up a large and regular demand for honey in its years of upright dealing.

Then the proper thing for honey-producers to do, is to let *new* honey-commission firms entirely and severely alone, *unless* satisfied beyond all doubt of their ability and willingness to do just as they propose.

Residing in what is thought by many to be the greatest honey-market in the world—Chicago—I am often placed in a position to discover some things about the doings of honey commission-men that few have the opportunity to learn. For instance, you come to Chicago with one or more carloads of honey. You call upon a large honey-commission firm; they of course are fully informed as to the needs of the market, or, if necessary, they can easily communicate by telephone with all the other large honey-dealers. In fact, no one will make you an offer, but keep you running from one firm to another, yet always wanting to know *your* figures on the honey—just what *you* are *asking* for it. After one of the firms finally purchases your honey—likely at their own figure—they will offer to divide it with the other honey commission-men at an advance of perhaps ½ cent per pound, or even at the same price they paid for it. Thus you see they really can work together, and there is practically no competition whatever.

Firms with plenty of available cash capital can buy honey outright, in carload lots, at a greatly reduced rate, and throw it on the market at a very slight advance—say one or two cents per pound on carload lots—thus making from $250 to $300 per carload, and running the market price down. On the other hand, permit me to quote two sentences from a private letter that I received from an honest honey-commission firm last February, referring to another firm who *claim* to have plenty of cash capital, but some of whose dealings will hardly bear investigation. The two sentences read thus: [redacted]

"*They* boldly say that *we* are the cause of grocers having to pay over 10 cents per pound for choice comb honey. *Our* competition makes honey cost *them* so much—*more* than it otherwise would!"

Again, the *dishonest* honey commission men have every thing in their own hands, once they have your honey in their possession. There is scarcely a law by which you can hold them in case you catch them at all. They can sell your consigned honey for whatever they please, and return to you as little as they please. You have only to submit, and next time let such alone, if you are wise.

But there are *honest* honey commission-men. What producers should do, is to find such, and encourage them as much as possible by giving them their patronage and endeavoring to aid them in every way they can—by preparing and packing their honey as the particular market requires, and allowing them to be the judges as to the best time to sell. By crowding the honest and careful commission-men, you may often cause the loss of quite a good deal on your shipment. Forced sales must always be at the lowest figures.

But honey commission-men are not the worst evil with which honey-producers must contend, as we shall presently see.

The world has had what is known in archæology as "Ages"—the Stone Age, the Bronze Age, and the Iron Age. But just now we seem to be in the midst of another "Age," namely, *the Adulteration Age!* It appears that every thing susceptible of adulteration is besmirched with this growing, devastating fraud. Sanded sugar, corncobbed maple syrup, watered milk, paraffined beeswax, and glucosed or corn-syruped honey. But enough for our consideration, perhaps, is that of honey adulteration.

Who are the slimy bipeds, guilty of the adulteration of our pure, sweet product? They are mainly the city wholesale grocers, the syrup-mixers, and some of the so-called honey commission-men! I am credibly informed that out of 40 of the largest city customers of a certain Chicago honey-dealer, 27 adulterate the honey they purchase! Think of that, my fellow bee-keepers! How many times over can those 27 frauds multiply the honey product, when the price of glucose to-day in Chicago is but *a trifle over one cent per pound?*

You have often seen one-pound tumblers holding a clear liquid with a piece of honey-comb in it. Well, at least one honey commission-man in Chicago puts up such, and there is just one cent's worth of pure honey in each tumbler, and the rest is glucose. It retails at 10 cents, and costs 3 cents, including the glass tumbler.

Why is glucose used almost wholly as a honey adulterant? Because it carries no taste or flavor of its own—so that when only a *little* honey is added it gives the honey flavor to the whole. Another reason is, that glucose does not granulate as does most of the pure extracted honey; this latter is looked upon with suspicion, hence as glucose does not candy, it is a feature in its favor with the uneducated.

The agent of one Chicago adulterating firm said they had to have a piece of comb in each tumbler, as that is the only way people would buy honey (?) put up in glasses nowadays. And that shows there is a great lack of education or information on the part of the consumers these days concerning pure honey.

So long as the glucose business holds out, it matters not how limited is the genuine honey product on the market, under existing circumstances.

Now, fellow bee-keepers, what can we do to stop this gigantic evil which threatens to destroy the legitimate and honorable industry of honey-production? Why, *unite*, and *push* for the enactment of a *prohibitory law* that will compel the entire cessation of honey and other adulteration, or the requirement that every package of food products offered for sale shall bear upon it, in conspicuous letters, the true name or names of the contents. Then if the consumer desires to purchase glucosed honey, let him do so, and not be deceived into buying the adulterated article when he thinks he is getting the simon-pure honey.

But some will say, "You *can't* enforce such a law!" I say *we can*. How? Elect *men* to office, and *not politicians;* men who are *honest*, who are *not afraid* to do their *duty*. Then when our officers attempt to put down our common enemy—the honey adulterators—let us give them all the help within our power, instead of standing around and whining, "You *can't* enforce it!"

Until bee-keepers have in their hands this legal weapon with which to pulverize the monster of honey-adulteration, I can see in the future no encouragement for our beloved pursuit. But equipped with an adequate *anti-adulteration law*, bee-keeping would go marching onward with the full assurance that its devotees have an even chance to become thrifty and prosperous in a pursuit that endeavors to place upon the table in every home, one of Heaven's purest and best sweets—honey, as gathered by the blessed bee. GEO. W. YORK.

Chicago, Ill., Oct. 1, 1896.

JUST as we go to press the *American Bee Journal* has come to hand with the information that George T. Wheadon has been arrested on a warrant charging him with obtaining money on false pretenses. It seems he sold 840 tubs of butter, and several dozen cases of eggs for a Wisconsin farmer, and failed to turn over the proceeds. I also learn through the same periodical that another commission house is still sending out circulars on *white* paper after the Wheadon stripe, and claiming to be one of the largest dealers in the country.

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OUR HOMES.

For precept must be upon precept, precept upon precept; line upon line, line upon line; here a little and there a little.—ISA. 28:10.

The following is along the line of thought of my talk to the bee-keepers at Lincoln, Neb.:

Dear friends, this is an age of improvement and progress. We are not only devising ways and means of furnishing *better* things than the world ever saw before, but, strange as it may seem, we also furnish these improved necessaries of life for *less money* than they could ever be bought for before. Yes, many times we furnish a better article at a much less price than the old-fashioned awkward utensil or implement used to cost us fifty or a hundred years ago. I may mention briefly some of the things that have been accomplished in bee culture. We not only have a better and handsomer section to hold the honey than we ever had before, but our expert bee-keepers succeed in getting it filled with snow-white comb and luscious contents in a neater and more attractive shape than it has ever been before.

I can remember the time, years ago, when I decided that the comb foundation that seemed to be needed ought to be made with a pair of rolls. I said we should be able to roll out a strip a mile long if anybody wanted it. Long days and nights I worked on the problem; and I distinctly remember the time when Mrs. Root urged me to burn up my machinery and give it all up. She was tired of the melted wax, doubtless, and I was too. But I could not think of abandoning the project then and there. Nowadays when I go down into our wax-room and see the boys and girls making beautiful foundation, or, rather, see as I have of late where automatic machinery does it, I wonder if anybody thinks of the long string of difficulties that we had to get through with before this thing was a success. The machine now takes a chunk of pure beeswax, said wax being melted and kept at the right heat by a coil of steam-pipe. A machine makes it into sheet wax of evenest thickness, and these sheets are run out and rolled up like a belt of leather or like paper from a paper-machine. Another automatic machine passes it through the rolls, cuts the sheets into the desired length, and piles them up neater than any one can possibly do it by hand. These machines will run for a little time alone, and do their work all right without any attention or supervision whatever. I have not the time here to mention the improved products that meet us on every hand; but let me take one more illustration:

During the past summer I have greatly enjoyed raising a crop of the finest apples I ever saw. We commenced in the spring, before the trees were leaved out, and sprayed them with the Bordeaux mixture. Just before the buds opened we gave them another spraying. After the petals had fallen so that we should not poison the bees they were sprayed a third time, with a little London purple added to the spraying solution. This was to poison the codling-moth. When the apples were as large as hickorynuts they were sprayed again with the Bordeaux mixture and arsenic, and a little later on they were given still another dose. The result was, we had apples free from scab, and almost free from worms. But this *spraying* was not all of it. The borers have for several years been at work down near the base of the trunk of the trees in my young orchard, and some of the trees were killed outright before I found out where and what the enemy was. Last fall we commenced to dig out the borers with a sharp pointed knife and wire. We went over them again in the spring, and once more along in June, and we are going over them again this fall. And that was not all. The trees blossomed very full last spring. Many of them had set more apples than they could hold. We picked off the gnarliest and poorest specimens where there were too many on a limb; and we got rid of some more by shaking them off in order that the remaining ones might have a better chance. Still further, we drew some fine old well-rotted manure, and scattered it liberally around under some of the choicest trees as far as the limbs extend. This was to enable them to perfect the immense loads of fruit that the tree had undertaken to mature. The copious rains of last summer carried this fertility all down to the roots; and as a reward for our pains and care, we had, as I have told you, apples that not only astonished but delighted all our friends. Yes, the apples delighted our little granddaughter before she was quite one year old; and grandpa carried her out and showed her the great nice apples, and explained to her that they were not only handsome, but would be good to eat in a few days. She learned with her baby lips to join in his exclamations of surprise and thankfulness. If I remember correctly he used to say to her, "Oh, my! what nice apples!" But her baby lips did not shape the words exactly as grandpa did. She got it, "Oh, *wy!*" instead of "Oh, my!" Pretty soon that was her favorite expression when she saw any thing nice or unusual. Sunday morning, Oct. 18, when the snowflakes came tumbling down almost as large as half-dollars, she looked out the window and expressed her wonder and surprise by a series of "Oh, wy's!" When she came to enjoy the nice mellow apples with grandpa, there were more "Oh, wy's!"

You see, we could not secure any thing real nice and beautiful without much care and pains; but it must be line upon line and precept upon precept, as the old text has it. And, again, it is not enough to plant the seed or to plant the tree. Both must be watched year by year, week by week, day by day. Sometimes it must be hour by hour. If you are raising Hubbard squashes, and want to have the finest and best in the market, the bugs must be watched for when the weather is favorable, almost every hour. It will not do to say, "I *think* they are all right, for there was not a bug on them this morning." By noon the bugs may have destroyed a large number of plants. Sometimes the potato-beetles come in upon us in the same way. Eternal vigilance is the price of victory, and it is so in producing almost *any* thing for market, in these days when sharp competition is all around us. It will never do for us to be discouraged because there are so many foes to fight, and because prices are so low, unless we have the very finest that can be produced. It seems hard; but yet if we have the right attitude toward the great Creator of the universe, and are looking to him daily and hourly for guidance and counsel, we shall see there are blessings in the background of the very things that look to us like misfortunes and hardships.

And now, dear friends, I want to speak of something of more moment and more importance than sections of nice honey or even beautiful apples. All these things are right and proper. It is a grand thing to see young men or young women giving their whole heart to the work of excelling in these things. But this should not be first and foremost. Somebody has said that the most *important* crop that grows on the farm or anywhere *else*, for that

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matter, is the crop of boys and girls. And now I am going to direct your attention to caring for the children in this great land of ours. Educated, intelligent, pure-minded men and women are the grandest piece of work that humanity ever contemplated; and bright, symmetrical, pure, and good men and women do not come without care and painstaking. If the parents do not do it, somebody else must do it. That little grandchild I have alluded to would not be sweet and pretty if she were allowed to have her own way. Ask her mother, and she will tell you that I have made no mistake. God gives us these children pure and innocent; but by some means we may not be able to understand exactly, evil impulses and bad dispositions are sure to take root and grow if they are not watched and weeded out. Like the borer in the trunk of the apple-tree, these evils, if allowed to go on, will strike at the very vitals in a short time. Then, again, like the apples, we must watch them during *every stage* of their growth. The parent's work is almost never done.

Here is a sample of the things that threaten our boys. A speaker before the Ohio State Liquor League, after having discussed matters of interest to the saloon business and its successes, wound up with the following significant statement:

It will appear from these facts, gentlemen, that the success of our business is dependent largely upon the creation of appetite for drink. Men who drink liquor, like others, will die; and if there is no new appetite created, our counters will be empty, as will be our coffers. Our children will go hungry, or we must change our business to that of some other more remunerative.

The open field for the creation of this appetite is among the boys. After men have grown and their habits are formed, they rarely ever change in this regard. It will be needful, therefore, that missionary work be done among the boys; and I make the suggestion, gentlemen, that nickels expended in treats to the boys now will return in dollars to your tills after the appetite has been formed. Above all things, create appetite!

One of their plans to teach the boys to like strong drink was to offer them lemonade containing just enough whisky or brandy to give the boys a taste. When somebody told me the borers were killing my nice young apple-trees, I declared that that sort of work should be stopped. But just compare for an instant this matter of choice apple-trees with the *boys* of our homes. Do you not say with me, "Let the apple-trees go—let *every* thing go—until we hold these fellows up to the scorn of all good people"?

Now, it is not intemperance alone that our children are to be guarded against. There are other things that have been pronounced even more blighting and withering and devastating than a taste for liquor. But the saloon men have got hold of *this* thing too; and the vile pictures of obscenity that accompany the liquor-traffic give you ample proof.

One of the great safeguards to all these dangers that beset our children are good schools and colleges. The beautiful university, with its hundreds of pupils, at Lincoln, Neb., tells us of the work that is being done there; and the bright faces, the good behavior, and the intelligent-looking young men and women that we see all through the buildings tell again of the work that is being done in the way of fashioning and molding intelligent beings into *God's own image*, instead of letting them go down to the depths of destruction and toward the bottomless pit that some of us have occasionally had at least glimpses of. May God help us to remember the boys and girls, the children of our homes, as well as the other things that cheer and delight us along the pathway of life.

DISSENSION AND CONTENTION AMONG OUR OWN PEOPLE.

The following, which I clip from the Chicago *Advance*, so completely expresses my feelings that I take pleasure in giving it to our readers:

In the interest of good morals and wise patriotism we wish to express our surprise, regret, and utter disapprobation in view of the persistent attempts of some of our political leaders to create social divisions among the American people, and to array classes against classes. *Our commercial and social evils can never be corrected in that way.* The most mischievous man conceivable in church, state, or general society, is the one who creates divisions, antagonisms, and acrimonies among people who are called to live together in harmonious co-operations, or who widens the breaches that fanaticisms have already made. Of all countries, this is out of place in the United States of America. The caste spirit and class prejudices are out of harmony with our national ideas and temper. Before the law, whether written on statutes, or on our traditions and general habits, we are equal. All places, social, political, and commercial, are open to the aspiration and effort of all citizens. Nothing could be more shortsighted and mischievous than that kind of talk which antagonizes political opponents as enemies, or attempts to gain popular support by encouraging one set of citizens in their prejudices against one another, and by fostering the unnatural sentiment that they are the slaves of fancied oppressors rather than American freemen in the possession of all the rights so splendidly conserved under the charter of our liberties. We may differ in respect to policies, but we are all members of one another in the fellowship of freedom.

LINCOLN, NEB.

This whole trip, of something over a thousand miles, was made in about 30 hours, or an average of about 33 miles an hour including stops and change of cars. Some of the way, I noticed by watching the mile-posts, we made nearly if not quite a mile a minute. On these fast trains a dining-car is used to save the time that would be consumed for stopping for meals; but on this side of Chicago the price was $1.00 a meal. I have paid this price for a meal of victuals only a few times in my life, and it has always given me a guilty feeling when I remembered the number of men with large families, who work hard for only a dollar a day: and then to think of taking a dollar for the purchase of a single meal gives me a feeling that I should not like to have it known. I can not do it with a clear conscience. Again, when near Lincoln a man boarded the train, who was a subscriber to GLEANINGS. We had a very pleasant talk with him, and in this talk he said that corn had been sold as low as 10 cents a bushel; and the bushel they have out there —at least a bushel of ears—would mean a bushel basket full, and *half full again*. In other words, think of paying out for your dinner money enough to buy *15 bushels of corn* as we measure it here in Ohio. There is something wrong and inconsistent about this. I do not wonder that the railroad companies complain of the lack of travel. How can a *farmer* travel when he must pay a dollar for his dinner or go without it? Well, I am glad to say that we found a change in this matter when we got on to the Chicago, Burlington & Quincy beyond Chicago. It was my pleasure to have Dr. Miller with me for a traveling companion. Along between 7 and 8 o'clock the doctor mentioned that he would be very glad to have some nice

beefsteak for breakfast if we could get it without paying a dollar apiece; and when the porter announced that breakfast was ready I asked him what they charged. I really felt happy when he said they charged for what a man called for, and nothing more. You see, this hit the doctor and me to a dot, for we wanted just beefsteak and hot water—at least I did, and we did not want to pay for a lot of things we "*didn't* want!" In a twinkling we were seated at a very pretty dining-table. At an expense of only 40 cents each we had just as nice and as large a tenderloin steak as either could have asked for. By consulting the bill of fare I found that one could make a very decent meal at an expenditure of only 25 cents, and enjoy the luxuries of a beautiful dining-room car at the same time. I do not know whether this European plan is a special feature of the C., B. & Q. or not; but I hope that other railroads that do not fall into line of letting a man dine cheap if he wants to will have their reward—a beautiful dining-car without any patrons.

Now, it is worth something to me to eat my breakfast leisurely and in comfort while I am wheeled along at the rate of almost a mile a minute. It is worth something to me to have a great large plate-glass window, spotlessly clean, where I can see our broad country as I leisurely masticate my steak. Through Indiana, Illinois, Iowa, and Nebraska, we saw more cornfields than almost any thing else; and the fields are so large that the rows are long enough to please even *Terry* in the way of *long* rows. May be I am a little conceited in regard to my own State; but it did seem to me as though the farming through the West was not as well managed as it is in Ohio—at least along the lake shore between Elyria and Toledo. This fact impressed me forcibly both in going out and coming home. For instance, I saw not only men but women digging potatoes with a *hoe* all through the Western States. To make the matter more aggravating, there were so many weeds in the potato-fields it was a very hard matter to get out the potatoes with a hoe or any other implement. Why! I saw *women* chopping away with a hoe when I fairly ached to take one of our nice bright potato-forks and go into that field and get all the potatoes out on top of the ground from a *dozen hills* while they were working at one. I think we should have some missionaries sent out, equipped with nice bright potato-forks. These missionaries should instruct the people how to use a fork in place of a hoe.

Then, again, it is not only the potato-fields that were weedy, but the cornfields were, as a rule, terribly weedy. You may say we can not expect clean corn-fields when corn brings only 10 or 15 cts. a bushel. May be I am wrong, but I do not agree with this sort of reasoning. If I were *obliged* to raise corn at 10 cts. a bushel I think my chances would be better for getting out whole with clean culture; and clean culture does not cost very much nowadays. Perhaps they do not cultivate their corn out west at all. Some of the fields looked as if they didn't. But then there are other fields, and we found them occasionally all along the way, that showed evidences of clean culture and *nice* farming. I do not know how many bushels of corn these people get to the acre; but on my own ground I have succeeded in getting at the rate of 200 bushels of ears to the acre.

A good deal of plowing that I saw done did not suit me. Now, I am not very much of a farmer, and may be these people know their own business best; but after I had *raised* a crop of weeds I should certainly want a plow, and a man to manage it, so as to get *all* of the weeds under the ground and out of sight. Let me digress a little:

A neighbor wanted to hire our team and tools to get in a piece of wheat. Our price for man, team, and tools, is 35 cts. an hour. He thought he could not afford to pay that, so he got a cheaper man to do the plowing. *Then* he decided he had better have our man to finish the job; and as he went away he remarked that the harrowing would have to be done *all in one direction*, because the plowing had been done so poorly the trash would all be pulled up again if it were dragged in the usual way. Our team finished the job and put in the grain; but it cost more to do it than if we had taken the job in the first place (plowing and all) at our price, and we should have had the job from beginning to end in very much better shape. Now, I leave it to you whether cheap hurried plowing pays after all.

The great prairies of the Western States offer wonderful advantages to improved farming, and I was told again and again that no manure was needed, nor fertilizer of any sort. They grow corn on the same ground year after year, and get big crops—sometimes big crops of weeds too, along with a big crop of corn.

As we got near the end of our trip, the prairies began to grow wider and wider; and sometimes the scenery reminded me so strongly of that wonderful trip across the deserts on the Southern Pacific that I felt as if I *must* go on, not only to the great deserts but to the land beyond those wonderful mountains.

Lincoln, Neb., is beautifully situated. Its buildings are as fine as any I ever saw in any city of its size—perhaps finer. A mile or two out of the city there is a wonderful salt lake that I longed to investigate. This salt lake rises and falls like the waters of the ocean, so I am told. At a certain time of the day there is quite an expanse of water; but a few hours later the salt basin is almost empty. I wanted to know more about it, but lack of time did not permit further investigation.

During the intermission, I heard some talk about the beet-sugar industry. The general impression seemed to be that there was not very much encouragement in it for the farmers. One lady, however, thought differently. A great amount of money has been expended in developing beet sugar, and I hope the result may be that it has not been expended in vain.

ON THE WHEEL AMONG THE POTATO-GROWERS.

Yesterday, Oct. 22, it was my pleasure to see Wilbur Fenn, of Tallmadge, O., dig and store his potatoes. You will remember that he is the man who plants his potatoes late—in fact, as late as the last of June and from that into the first of July; therefore he is always late about digging. I reached his place about 9 o'clock in the morning. There had been a severe frost the night before; and the crust on the surface was hardly thawed out enough to start. I found him, however, with four horses on the digger, just ready to go ahead. T. B. Terry places one team ahead of the other; but Mr. Fenn has four horses abreast, each horse walking in the furrow between the rows of potatoes. In this way his horses are all close to the driver, and there is but little trouble in keeping them in place. The digger is the Hoover, illustrated

in our potato-book. He has, while digging, five hired men besides himself and boy, and three span of horses. While waiting to warm up, his hired help was husking corn and drawing it to the crib. As soon as the digger had gone once down and back, two men commenced picking up. Let me say here that his 18-acre potato-field is 100 rods long. This saves a large amount of turning the teams in every stage of cultivating the crop; and with *four horses abreast* it is important that turning be avoided as much as possible. Here is where the importance of long rows comes in. Now for the pickers.

Two men take a potato-box between them. As the machine digs every other row, the potato-box is placed on the row that has been dug and picked up. The pickers are stout young or middle-aged men. With a sort of swinging stride they gather the potatoes and throw them into the box; and as the box is to be moved along, each one keeps watch and is ready, so that they take hold of it, one on each side, without any waiting or hitch in the proceedings. Of course, the empty boxes are placed along so as to be right at hand as fast as they get one filled. It takes a little practice to drop them just about right. When there are boxes enough filled to make a load, a wagon with a long reach, and some stout planks laid on for a bed, is driven to the further end of the field—that is, the further end from the place where they are stored. The lines are tied up, and the horses are trained to run the wagon very near the filled boxes, and yet not so near as to knock them over. One man stands on the plank bottom and takes the potatoes as the other hands them, with a sort of swing, up on to the planks. The team does not stop at all, and, in fact, they are trained to step along at a pretty brisk pace. But it is hustling work, and it makes the men puff. About 30 bushels make a load on this soft mellow soil. The horses go straight up to the cellarway.

Now, if you will give me your full attention I think I can make it plain as to how he unloads, without any picture or diagram. His cellar is reached by going down an ordinary hatchway, say five or six steps. We will suppose the team with its load of potatoes to be standing close by this hatchway. Across the doorway, down to the bottom of the steps, a stout strip of board is nailed. This strip is up perhaps three feet from the ground. Now, a sort of railway-track runs from this strip across the doorway up to the wagon. This railway is made of two strips of hard maple, perhaps 2x6. They are placed about 14 inches apart, and nailed together so as to form a sort of ladder. The upper end rests upon a pair of legs placed wider apart at the bottom, so as to make the tops stand solid. The incline is such that a box of potatoes will just slide down at a pretty good speed. To prevent accidents, a little carriage is made on the railway. This carriage is a frame of boards a little larger than the potato-box. A rope is attached to one side so it can be hauled back to the top after it has carried down a box of potatoes. After the box reaches the bottom, the man in the cellar takes it up. The one on the top gives the rope a jerk, and the carriage comes back for another load. To make this carriage stand still while you are loading, the upper edge drops into a little jog in the track. When the box is placed on the carriage, the back end is lifted enough to start it down the track. While I was present they unloaded 30 bushel boxes in 5½ minutes. This included running the empty boxes up, and loading them on the wagon. The next load, while I stood present with watch in hand, was emptied, 26 bushels, in 3½ minutes. And then the team was back to the field for another load. Now, these men did not talk *politics* while making this record, I assure you. They get a dollar a day and their dinner. While I was around, each man worked as if he were running the potato business himself, and was afraid that, at 25 cts. a bushel, there might not be very much profit left for the farmer. The day before, they dug and put into the cellar nearly 500 bushels. The expense of the men and teams would not go over $10.00, so that friend Fenn gets his potatoes dug and put away for winter at an expense not exceeding 2 cents per bushel. As all his other operations in producing the crop are conducted in this same systematic way I should not wonder if he does very well, even should he not get more than 25 cents a bushel. As his crop, however, is all of it extra nice Monroe Seedlings and Sir Williams, he will probably get rather more than what they are paying in the general market. That 18-acre field, if I am correct, is going to give him about 3000 bushels. Potato-growing time with him is harvest time. His oldest boy stayed out of school to do errands and help his father boss things, so as not to have any hitch in the work; and his oldest girl, Ellen (who wrote the little letter for us), stayed at home to help her mother get dinner for the "harvest hands."

In discussing the relative merits of the Monroe Seedlings and the Sir William, we begged his good wife to cook some of each kind for dinner. As they were placed on the table, a huge dish of each, smoking hot, cousin Fenn asked us to tell which was the Sir William and which was the Monroe Seedling. The Sir William was a little the most floury and mealy; in fact, they will boil all to pieces if you do not look out, and they are an excellent eating potato, even when half grown, as I have told you before. In point of flavor it is hard to distinguish much difference. The Monroe Seedling, however, is the whiter potato of the two. The Sir William has a little of the yellow tinge. They look a little yellow as they are dug in the field, and have a very light shade of yellow after being cooked; but they are both splendid potatoes.

Now, here comes in another matter that should not be lost sight of. The Sir William is not as good a potato in the spring as the Monroe Seedling. It will sprout almost in spite of you, while the Monroe Seedling can be kept clear up into June, with proper care, almost as sound as when it was first dug. Mrs. Root has said many times that she would rather have the Monroe Seedling in June and July, for a cooking potato, than to have the new potatoes in the market.

In regard to yield, there did not seem to be very much difference. Fenn's potatoes are all grown in a beautiful sandy and gravelly loam. They are handsomer and smoother than potatoes grown on heavy clay or on muck lands, and are much better for table use than those grown in muck.

A little further on, at Mr. Metlin's, I found them digging with a Hallock improved digger. This machine is much like our own, except that it has a sort of grating of steel rods that drags along on the ground right beside the shovel-plow digger. This shovel-plow turns a furrow (potatoes, dirt, and all) over each way on to the frame of steel rods. As it drags along over the dirt the soil sifts down through, while the potatoes, stones, and lumps of dirt are left on the surface. It certainly does very good work for a cheap digger ($18.00); but it does not place every potato on top of the ground quite as well as the Hoover machines do. Another

thing, a great part of the potatoes are left down in the furrow left by the digger. This makes it more work to pick them up than where they are left on top of the ground, or on a strip of ground slightly raised, as with a high-priced digger. It is harder work on the back where you have to reach down *lower* to get the potatoes. Mr. Metlin has Carman No. 1 (or did have until I bought them) and the Koshkonong, the potato that gave such tremendous yields at the Ohio Experiment Station last year. His soil is like friend Fenn's—a sandy loam.

WILL IT PAY TO BUY A POTATO-DIGGER, AND WHAT KIND SHALL ONE BUY?

That depends. If you raise an acre or more of potatoes, I think it will pay you to have a digger. Perhaps one that costs $8.00 or $10.00 like my own, will do. If you are going to raise high-priced potatoes, so it is important to get every single one, big or little, it may pay to invest still more money in a digger, say the Hallock; but if you are going to raise five or ten acres every year, and especially if you get 200 or 300 bushels per acre, and of valuable sorts, then you can afford to buy a digger that costs $75 or $100; and, by the way, if the owner of the digger can go out and work with it for his neighbors it will very much aid in reducing the expense of keeping such a machine. I get 25 cents a day for the use of my cheap digger, and sometimes several want it the same day.

On our grounds we commenced digging potatoes about the middle of August, putting in crimson clover after them, and we have been digging potatoes and putting in their place crimson clover, winter oats, and rye, almost ever since when the weather was suitable. Our last potatoes were dug and put away Oct. 20. Now, you see with only ten acres of potatoes of different varieties, and ripening at different times, you can use a digger almost constantly for two months; and if you let it out to your neighbors, it may be made to pay a very good interest on the money invested, even if it is used only in the fall of the year.

SORTING POTATOES.

Wilbur Fenn does the sorting as he picks them up in the field. As a rule he does not pick up any seconds at all. Each man is carefully instructed, and he follows after them to see that they are working according to the instructions. I thought they were leaving some pretty nice potatoes on the ground,* and so I asked him how much he would throw off if they would pick up every thing, little and big. There were two reasons why he did not want to do that way. One was, that he did not want any potatoes to go out as "Wilbur Fenn's" unless they were up to standard according to his ideas. Secondly, he had got his gang of men trained to do the sorting just about to his notion, and he did not want to demoralize them by starting in any other way. So I decided to let them go on, but made arrangements to have a man go along afterward and pick up some Sir William seconds specially for me; therefore Wilbur Fenn's potatoes are all firsts. He has nothing else in his cellar. In our work at home we pick up every thing, especially with the Thoroughbreds and other high-priced potatoes. We stack them up in slatted bushel boxes in the cellar; and when it is stormy and bad weather, so the boys can not work outdoors, they do the sorting with the machine shown below.

You will notice it has a tray with a screen bottom. This tray is arranged to swing. A chain is attached to the back of the tray so that it can swing only so far. Now, one great trouble with most sorting-machines is that potatoes will come part way through the screen and stick. By giving this tray a smart bump or jerk, rather (for the chain jerks it when it gets the length of the chain), the potatoes will, most of them, get jerked out of the screen—that is, they will either go through or else hop out and go down among the bests. The space underneath the tray is just big enough to hold four of our bushel boxes. To work rapidly it needs a man and two boys—one boy for each side of the machine—that is, where your potatoes are to be sorted as we sort them for seed, not only for size, but so that we can throw out all the bad-shaped ones and all scabby or cut or bruised ones. All these we put in as seconds. While a cut or bruised potato may keep over winter all right, it does not suit very well to put such into barrels labeled No. 1. This machine, as you will notice, gives the operator or the boys a chance to see the whole of every potato as it rolls down the incline. If we sort them only for size, we can put them through rapidly; but it takes quite a little time to sort them over, especially in regard to general appearance. The price of the machine is $15.00. You see where it is made, by the lettering on the cut. There are three different sizes of screens for each sorter, and the machine is so

* Wilbur Fenn's Monroe Seedlings are remarkable for being of such a nice oval oblong shape—scarcely a prongy or crooked potato. This year, however, the abundant rains had the effect of making more prongy ones than usual. These, unless very large, he throws out with the seconds. His reason for so doing was that he believes like produces like; and although these prongy ones might do very well for table use, he says he thinks it pays him to throw them out as seconds. For instance, should he draw a load of potatoes to market, half a dozen prongy and crooked ones scattered through the lot would knock off three or four cents a bushel. Here is an important item for you, brother potato-growers: When you are going to market with a load of potatoes, all of nice shape, it has quite an influence on the one who is naming the price he will give. Use up the prongy or crooked ones on your own table—that is, if you think it will pay to bother the good wife in that way, or else sell them at half price as seconds. I am not at all sure that planting prongy ones would be more likely to *produce* a prongy crop. Will not our experiment stations please make some experiments so as to decide in regard to this matter a little better?

made that the screens can be changed in an instant. The manufacturers claim the capacity is over 1000 bushels in a day. The weight of the machine is about 100 pounds.

MAULE'S THOROUGHBRED POTATOES CONTRASTED WITH THE EARLY OHIO.

I have before this mentioned the nice Thoroughbred potatoes grown for us by W. J. Manley, Sanilac Center, Mich. Well, among the lot of Thoroughbreds was a barrel of Early Ohios as sample. They look so much like the Thoroughbreds, and were so much larger than the Early Ohios we have around here, we wrote for an explanation. He replied as follows:

Friend Root:—The barrel marked "E. O. was the Ohios all right. I knew you would not be able to distinguish them by appearance; but had you been present when I dug them you would have had no trouble, as the decidedly "red noses" in many of the Thoroughbreds were sufficient to identify them. However, they resemble each other very much; and were it not for the much greater yield according to seed used of the Thoroughbreds I would find it a hard matter to decide which potato was the better.

In point of earliness, there was very little difference between them. The Thoroughbreds were planted but one day ahead of the Ohios, and they were both ready to dig at the same time. As to the oblong shape of the latter, I can only attribute it to the fertility of the soil. I bought the seed for pure, and I believe it is. The soil certainly is very rich as you may know when I say that from 1½ acres I dug 711 bushels of such potatoes as I am sending you, and not a particle of fertilizer of any sort was used. But, hold on! I did use my brains, as Mr. Terry says, in the cultivation of them throughout. My success with the Thoroughbred has "leaked out" in spite of myself, and created, not only a little sensation, but quite a local demand for them.

Sanilac Center, Mich., Oct. 16. W. J. MANLEY.

Seven hundred and eleven bushels of Thoroughbreds on an acre and a half would be 474 bushels to the acre. I am sorry our friend did not also give us the yield per acre of the Early Ohios. I wish he would tell us further if the ground on which these were grown had not been heavily manured the year before. Such a yield without "a particle of fertilizer of any sort" is indeed wonderful. Terry will indeed have to look out for his laurels; but from what I know of him I am sure he will not feel bad to see some of the boy farmers beat their teacher. There must be some wonderful potato land up in Michigan, and I am planning to take a look at friend Manley's potatoes if he continues to grown them another year.

I am very much gratified to learn that with you the Thoroughbred is as early as the Early Ohio. With us it is not quite as Early as the White Bliss; but the Early Ohios did so poorly with us on our soil, that we did not grow any the past year. In other places, however, I am told that the Early Ohio is a good yielder. It is strange what a difference there is in soil and locality on account of a distance of only a few miles.

ALL ABOUT SWEET CLOVER.

For two years past I have gathered and sent to you the seed of sweet clover, without knowing whether it was of any value to farmers, having taken it mostly from the gravel-pits where the soil was removed to a depth of several feet. But noticing some peculiarities about the plant, I have become interested in it. I particularly want to know when and how it should be sown, and how much per acre. How should the crop be managed? I have seen it growing on very poor and hard clay land, and where the soil had been removed—places where red clover would not grow—and the question arises with me now, "Would not sweet clover be the proper crop on such lands for fodder, and to restore fertility?" I also noticed that in places where I cut a heavy crop last year it was very small this year; and where I got none last year I cut a heavy crop this year. Why was this? Will it succeed if sown in fall or spring with wheat, like red clover, or should it be sown separate? HENRY PECK.

East Bethany, N. Y., Sept. 29.

Sweet clover can be sown at almost any season of the year, even late in the fall. We are sure this late sowing is all right; for where the railroad runs through our grounds the clover comes up every spring from self-sown seed dropped from plants where it grew. It is peculiar, and unlike any other plant in its wonderful habit of growing rank and strong on hard subsoil, barren hillsides, such as railroad embankments, gravel-pits along the highways, etc. In regard to its value for reclaiming barren soils, the Ohio Experiment Station made a test by plowing under a heavy growth of it before putting in wheat. Where no sweet clover was turned under, the yield was about 18 bushels per acre; but on the ground fertilized by turning under the sweet clover, the yield was over 26 bushels per acre, and a corresponding increase in the amount of straw. One reason why it prepares the land for other crops is because the great roots going down to such a depth act somewhat as underdrains. Its value for cattle, horses, and other stock, has now been fully settled; but it must be cut or pastured when the plants are small, say a foot or two high. Of course, stock will eat it after they have become accustomed to it, when it is several feet high and in bloom. But its great value is to cut it before the blossom-buds show. The reason it is found in certain places one year and not the next is that it takes two years to perfect blossoms and seed. The old stalks will die, root and branch, after having produced seed. This seed, dropped on the ground, produces small plants that must grow one year before they in turn produce seed and blossoms.

Some years ago D. A. Jones, of Canada, suggested sowing it in strips ten or fifteen feet wide, seeding alternate strips alternate years. In this way the tall plants will reach over the vacant strip and almost meet together overhead. Then after they die down, the young plants in the other strips will in like manner reach over, getting honey on the same ground every year. Its value for stock is easily shown by the fact that it is never found where horses or cattle are pastured. It makes its prodigious growth only along railroad grounds and highways where stock is never turned out. I believe it does not succeed very well sown on wheat in the spring. In fact, I have never seen a real success with it on rich cultivated ground. If others have, I wish they would report.

MORE ABOUT THE BUSH CRANBERRY.

Dear Friend Root:—I notice in GLEANINGS what you say regarding the tree cranberry. I suppose this to be the same shrub which we have in this State, usually called high bush cranberry. It is native in Iowa. It grows six to eight feet high, and bears clusters of *red* berries which are very *sour*. I presume these two traits have given it the common name. One of my brothers has had them growing in his yard for fifteen years or more. They are cultivated mostly for ornament, having a beautiful, white, umbelliferous flower, and, later, clusters of red berries resembling somewhat the European mountain ash. The only culinary use made of them, so far as I know, is for jelly. It is a beautiful color, good body, and has a peculiar "musky" flavor not found in any other fruit with which I am acquainted. And it is not bad to take either. I would not recommend the cranberry-tree for fruit alone, but as an ornamental shrub it is worthy of cultivation. The jelly made from it may not be relished by every one, but we enjoy a glass of it occasionally. The bush resembles the snowball, to which family it belongs, I believe, and the blossom is like the common black haw. EUGENE SECOR.

Forest City, Ia., Oct. 19.

☞ Friend S., "I am very glad indeed to have even a suggestion in regard to the value of these

berries as a fruit; but those growing on our ground have such an awfully acrid, bitter taste that it does not seem to me as if they could be fit for jelly. It may be that our peculiar season has caused them to ripen earlier, for they were all matured and gone before we could test them under the influence of frost, as suggested by friend Green on page 764.

SWEET POTATOES IN THE NORTH—HOW TO RAISE "GOOD ONES."

Friend Root:—I have raised sweet potatoes for the past 38 years. I was told to plant on the very best land I had, which I did for a few years. The result was plenty of vines but no potatoes. True, we had an abundance of roots. I once had one 3 feet long and not more than 1½ inches in diameter in the largest place—stringy and not fit to eat. When I can succeed in getting potatoes just the size and shape I desire, I want them, when split through the center, to represent a paw-paw leaf in size and shape. I do not care to have them any larger. The poorer the land the better will be the quality of the potatoes. I think the best potatoes I ever raised were on a bank of pure clean sand where not a weed or spear of grass could grow. The vines will then not grow more than 3 to 6 feet long, and never root to the ground. It adds very much to the size of the crop if one puts a quart of well-rotted manure in each hill when the plants are set. W. C. GAULT.
Ruggles, O., Oct. 8.

PRIZETAKER ONION-SETS VERSUS ONION-PLANTS, ETC.

Friend Root:—I bought Prizetaker and Pearl onion-sets of you last spring. The Prizetaker sets were a success and did better than those I raised by the new onion culture, making larger onions; but the Pearls beat them all. I have been getting 8 cts. per lb. for nice pearl onions, and have about sold out.

Of the 11 Manum's potatoes, 2 were rotten [from freezing.—A. I. R.] and rotten spots on some of the others. I planted one eye in hills one foot apart, and got 450 nice potatoes. I think they are a great potato. J. E. JOHNSON.
Bishophill, Ill., Sept. 26.

REPORT ON SECOND-CROP THOROUGHBRED POTATOES.

I got one pound of Maule's Thoroughbred potatoes (second crop) from you July 24; planted 50 sets; 12 were up Aug. 15; 30 more came up afterward, too late to amount to much; dug Oct. 15, 26 lbs., some of them fine ones. LEVI HERR.
Wilton Junction, Ia., Oct. 24.

Health Notes.

We copy the following from a little pamphlet from the Sanitas Food Co. Where we put in stars we have omitted some of their objections to lean meats, for our experience does not quite agree with it:

A NEW FOOD.

The excessive indulgence in sugar, candy, and other sweets, and the general use of imperfectly cooked grains in the form of oatmeal, cracked wheat, and the great variety of other breakfast foods with which the market is flooded, have given rise to a new form of ailment which is almost universal among Americans, although but recently recognized. This disease is known as "amylaceous dyspepsia," or indigestion of starch, and is sometimes called "vegetable dyspepsia." It manifests itself by pain and sourness in the stomach, formation of gas in the stomach and bowels, bloating, colic, heaviness after eating, headache, emaciation, etc. * * * * * * *

Quite a large proportion of persons suffering from this form of dyspepsia find so much relief from their distressing symptoms by the use of a flesh diet that they are naturally led to the conclusion that a vegetable diet does not agree with them, and so subsist almost wholly on meats. * * *

The effort to meet the requirements of this class of patients has led the writer to undertake an extended series of experiments, as a result of which he has succeeded in producing a most delicious and wholesome food from nuts, to which has been given the name of "nuttose." It is so perfect a substitute for flesh food, that in eating it one could readily imagine himself to be partaking of roast beef, dried beef, broiled chicken, or other meats, according to the mode of preparing.

Nuttose not only satisfies the craving for meat, but supplies the same kind of nutriment, and in a form which is digestible, and wholly free from the unwholesome properties of flesh food.

Price 40 cents per 1-lb. can.
SANITAS FOOD CO., Battle Creek, Mich.

We have had a sample of the nuttose; and it is not only a most delicious and nourishing food, but one would be almost certain it was a preparation of meat were he not told otherwise. Great credit is due to the Sanitas Food Co. for having given us a preparation of nuts, so nearly resembling meat. I presume our readers are well aware that I have long felt that I should be very glad of something in the line of nourishing food for invalids that would not necessitate the taking of animal life; and our friends in Battle Creek have, I believe, come pretty near it. The only thing to be done now is to make the price so that it will not be more expensive than flesh food.

Since the above was written they have also sent me a sample of nut cheese. This is a very fair substitute for real cheese itself; and in one respect it is better, for one can make a whole meal of nut cheese—at least I think so—when he would hardly dare to do it with cheese made from milk. For full particulars in regard to these new food products, address as above.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

LOW PRICES ON SEEDS.

With corn and oats at 18 cts., and many other things about as low, the prices on field seeds and garden seeds too, for that matter, are bound to run low. We are not prepared yet to make figures on all kinds of seeds, but we can usually give a big reduction from last year's prices on almost any thing. As a sample, we give you

PRICES OF JAPANESE BUCKWHEAT, NEW CROP.

Peck, 20 cts.; ½ bushel, 35 cts.; bushel, 65 cts.; 2-bushel bag, $1.10; 10 bushels or more, purchaser paying for bags, 50 cts. per bushel.

BASSWOOD SEEDS FOR FALL PLANTING.

Now is the time to sow them, friends, and we can give you fresh new seeds just gathered from thrifty young basswoods of our own growing. Ounce, 5 cts.; per lb., 50 cts. If wanted by mail, add 10 cts. per lb. for postage and packing. Sow the seeds now in good rich soil about as you would sow peas. If you put them in beds in the garden, you can put the rows as close as a foot apart, and drop the seeds about every inch. If you put them as close as this, however, you will have to transplant the young trees when they are one year old. With good rich soil, such as is used for market-gardening or plant-beds, you can get trees three feet high in a single season, under favorable circumstances.

This is also the proper time of year for planting out either large or small basswood-trees. See prices in our regular catalog.

POTATOES FOR PREMIUMS.

We shall continue offering as heretofore 1 lb. of Thoroughbreds to everybody who pays $1.00 for GLEANINGS without asking for any other premium. Remember, 1 lb. of Thoroughbreds for every dollar sent, whether it is paying up old dues or subscribing for the future; and to every present subscriber who sends us $1.00 for a new name—that is, who introduces GLEANINGS for the first time into a family

or new neighborhood, we will allow him ½ peck of Thoroughbreds, (or one peck *seconds*) worth $1.00; but in both cases we pay no postage nor express or freight charges. If you want your premium potatoes sent by mail, send us 9 cts. for postage and packing potatoes.

SEED POTATOES.

We have perhaps the finest lot of Early Ohios that we have ever got hold of or seen before. They are the same mentioned on page 800. The price will be as in the table below:

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	¼ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's *	50	75	60	1 00	1 75	3 00	7 00
Early Ohio	15	35		25	40	75	2 00
Early Norther	12			20	35	60	1 50
Burpee's Extra Early	15	35		25	40	75	2 00
Freeman	15	35		25	40	75	2 00
New Queen				20	30	50	1 25
Monroe Seedling	12			20	30	50	1 25
Rural New-Yorker No. 2	12			20	30	50	1 25
Sir William	15	35		25	40	75	2 00
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	35	60	1 00	2 50
Koshkonong	15	35		25	40	75	2 00
Manum's Enormous	15	35	20	35	60	1 00	2 50
New Craig	15	35	20	35	60	1 00	2 50

* At present writing, October 30, 1896, we have sold all of our best Early Thoroughbred potatoes, or practically all of them, to Wm. Henry Maule; therefore the potatoes offered in the table at the above price are all seconds. If you want firsts they will have to be taken from the stock now in our possession, belonging to Mr. Maule, at $15.00 per barrel.

We guarantee against damage by frost all potatoes ordered and shipped during this month of November.

OTHER POTATOES AS PREMIUMS.

Quite a few have wanted to know on what terms they could have other potatoes as premiums, and we have decided to allow 25 cents' worth of any kind of potatoes for every dollar sent us for GLEANINGS, present, past, or future. For every dollar sent by an old subscriber for a new name which is secured as explained above, you may have 50 cents' worth of any of the potatoes in the table. We can furnish seconds for half the price mentioned in the table, with the exception of White Bliss, Burpee's, Monroe Seedling, and Rural. All the potatoes sent out this fall of Thoroughbred, Early Ohio, Freeman, Monroe Seedling, Sir William, Carman No. 1, Carman No. 3, and Enormous, are grown for us on sandy potato soils, and are *extra fine* tubers.

KOSHKONONG AND EARLY NORTHER POTATOES.

I ran across some of these on one of my wheel-rides, as you will see on page 799, and since then I have secured ten bushels to distribute among our friends who may care to try them. This potato gave the largest yield of any at our Ohio Experiment Station last season, running up to 309 bushels per acre, while the Sir William gave 308.

We have also succeeded in obtaining some very nice Early Norther, grown by a branch of the Ohio Experiment Station. The station gives this potato a very good recommend for an extra early one. It seems to succeed everywhere.

GOOD NEWS FOR ALL THE FRIENDS WHO OBTAINED THOROUGHBRED POTATOES FOR PREMIUMS, OR WHO PURCHASED THEM LAST SEASON.

Just as we go to press to-day, Oct. 30, we have received an offer from Wm. Henry Maule, the originator of the Thoroughbred, for our whole stock, or practically so, of Thoroughbred potatoes. This practically gives him control of the market; and as the potato is of his own originating, it is his privilege to put what price on it he chooses. The price, therefore, from this time on, will be $15.00 per barrel, or $10.00 per barrel for 10-barrel lots. Single-barrel lots may be shipped from here; but larger orders will have to go to Mr. Maule himself; but we shall not sell any firsts for less than the price above—$15.00 per barrel. At present writing we have not received Maule's prices for smaller lots than one barrel; but have quite a quantity of very good seconds that we shall still offer at the price given in the table above. These seconds are not all seconds because they are small in size, but there are some potatoes among them that were cut in digging, some that are prongy or otherwise badly shaped, and some that are scabby. I believe our experiment stations have decided the scabby are just as good as any to plant if they are first treated with corrosive sublimate. This, however, should be done just before planting, if I am correct. Further particulars will be given in our next issue.

Now, friends, this is good news for all who have Thoroughbreds for their own use or to sell, because it indicates that the price is going to be high next year. It will pay to save and plant every potato.

GARDENING FOR NOVEMBER, ETC.

Unless you have glass, there is very little planting to be done; but I think it pays the gardener and everybody else to have the ground cleared off, all rubbish plowed under or buried out of sight. It is poor economy to burn up the trash unless you want to get rid of weeds that have gone to seed. No weed should ever go to seed on your premises. If, however, it is already done, burn them up; and then I would put in rye, even at this late date. It will be worth something to plow under in the spring; and if you have a wet time, the ground, as a rule, will be drier where rye is sown. If you do not care to put in rye, throw it up in ridges so as to let the frost work it up; then the ridges will be just the place for planting out your early peas.

Perhaps you remember what I said about peas sown in March, last spring. If you use glass, some lettuce should be put in every ten days or two weeks, so as to have lettuce-plants on hand.

Winter onion-sets can be put out now any time when the ground is not frozen. You can also set out strawberry-plants whenever the ground is not frozen, if you have learned the trick by practical tests.

For myself I have had excellent success in planting apple trees in the fall; and I notice now that very nice trees can be had for 10 cts. apiece, and even less by the quantity. Remember, an apple-tree grows while you are asleep. It costs but little to start it, and it may chance to give more delight to the good wife and children in a few years than any other investment you ever made.

If you have extra sashes, put in spinach. With a protection of glass, without any heat whatever, you can grow beautiful spinach, and it has with us never failed to command as good a price as lettuce, when nicely grown.

Take good care of your seed potatoes, and fix up your cellar—not only frost-proof, but make it neat and tidy. With a little pains a cellar can be made so pleasant and tidy that you will not be backward about taking your friends down to show them your nice apples, potatoes, etc.

SPECIAL NOTICES FROM BUSINESS MANAGER

BIG ORDER FROM RUSSIA.

We recently received a good-sized order from Russia, calling for 3 dozen foot-power saw-mandrels, 8 dozen circular saws, and 15 comb-foundation mills, as well as a number of other items.

BEESWAX HIGHER.

There has been an advance in the general market for beeswax during the past few weeks, and we are now able to offer shippers 24 cents per pound cash, 27 cents in trade for average wax delivered here. We do not look for any further advance for some time, although we can not tell, of course, how the market will go. If you have wax to dispose of you will do well to ship it at above prices. We have bought up several tons recently, and are always ready to add to our store, especially to be paid for in trade.

EARLY-ORDER DISCOUNT.

Now is a good time to lay in such supplies as you know you will be in need of next season. Only a month remains of the time when the largest discount is allowed. Up to Dec. 1st, 5 per cent is allowed on

all supplies ordered for next season's use. This does not apply to honey-packages ordered alone, and which are presumably for immediate use, but is intended to apply especially to hives, sections, comb foundation, and such staple supplies as you can put together during the winter time, when you have leisure, ready for use the coming season.

HONEY IN TRADE FOR SUPPLIES.

We have made a number of exchanges of supplies for honey during the past few weeks, and are prepared to take care of more. If you have a surplus of honey not needed in your home market, and are in need of supplies, let us hear from you with a description of your honey, if it is comb, and a mail sample if extracted, telling how it is put up.

HONEY FOR SALE.

There has been a brisk demand for honey, and large quantities are being moved, but prices are low. We do not notice any tendency to lower prices than those ruling; but present prices are well sustained. We offer choice white comb honey in 12 and 24 lb. cases, 100-lb. lots, at 14c; 200 lb. lots at 13c; good quality white, 1c per lb. less. Fancy buckwheat at 4c per lb. less Choice new extracted honey in 60-lb. cans, 2 in a case, at 7c. Large lots for less. Last year's honey of excellent quality, as it is, 6c; liquefied, 6½c.

MAPLE SYRUP.

As cold weather approaches, the appetite for buckwheat cakes sweetened with pure maple syrup increases, and we are having inquiries for it. We have a good supply of choice syrup put up in one-gallon cans by the producer, bearing his label, which is required by Ohio laws, and is a guarantee of absolute purity. We offer this at $1.00 per gal; 5-gallon lots at 90c a gallon; 10-gallon lots at 85c; in barrel lots of about 20 gallons, 80c. We have also some produced in 1895, of good quality, which we offer at 10c per gallon less than above prices. All syrup will be examined before being sent out, to be sure that it has kept sweet through the warm summer months, and you can depend on getting a first-class article if you send us your order.

GLEANINGS FREE.

To new subscribers who send their subscription right away we send the remaining numbers of this year free and for all of the year 1897, for the subscription price of one year, $1.00. If your neighbor keeps bees, convince him that he can not afford to be without a bee-journal. In addition to the above inducement, we will allow you a liberal commission of 25c on each new subscription you can secure at $1.00. It will pay you to do some personal work, especially in view of the fairly good crop of honey this year. Remember that, if you select the cash premium mentioned above, no other premium can be claimed; or if other premium offers are accepted, no cash commission can be given in addition.

Maule's New
Thoroughbred Potato.

If you intend to plant them next year, get my prices before buying. I can save you money. Freight paid on first barrel order from each county. Reference, Wayne Co. Savings Bank, Honesdale, Pa.

W. C. SIMONS, Arlington, Pa.

A Large Book Free!

To every new subscriber who sends us $1.00 we will send him our journal, **Gleanings in Bee Culture**, one year, and the book by A. I. Root, containing 190 pages, the size of this, entitled **What to Do, and How to be Happy while Doing it**, postpaid. The regular price of this work is 50 cents. If you prefer, the journal may be sent to a friend, and you can keep the book for yourself.

THE A. I. ROOT CO., Medina, O.

Labels, Honey Jars, Shipping Cases, Cartons, and a Full Line of SUPPLIES.

I. J. Stringham, 105 Park Place, New York, N. Y.

INFORMATION GOLD! Worth it's Weight in

For your name and address on a postal card, we will tell you how to make the **best wire fence on earth, horse-high, bull-strong and pig-tight**, at the actual wholesale cost of wire. **Kitselman Bros.** Box B. **Ridgeville, Ind.**

The Testimony of the Gleanings Family as to YELLOWZONES is Unanimous.

You all know J. P. Moore, of Morgan, Ky., whose strain of Italians "just roll in the honey." He writes July 8th, 1896:

Find inclosed $1.00 for 6 more boxes Yellowzones. They are the best remedy for sickheadache that we have ever found.

An honest efficient remedy for all Pain and Fever. Every box guaranteed; but no customer has ever yet asked for his money back.

Yellowzones promptly cure the diseases incident to cold and damp weather.

Single boxes, 25 cents; 6 for $1.00.

W. B. HOUSE,
Detour, - Chippewa Co., - Mich.

Please mention this paper.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must say you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To buy a car lot of fancy and No. 1 white comb honey, at prices to suit the times.
B. WALKER, Evart, Mich.

WANTED.—Comb and extracted honey. Give description. Price in 500 pound lots.
J. F. MICHAEL, Greenville, O.

WANTED.—To exchange the best apiary and supply business in New Mexico; also a 26-acre fruit farm, 6-room house, and out buildings, near agricultural college and public school, for city property in the east, or offers.
MCCLURE BROTHERS, New Concord, O

WANTED.—To exchange for clover comb and extracted honey, one 200-egg Reliable incubator: one 200-chick brooder; a "Dandy" $12 bone-cutter, used one season; one 14x16 tent.
J. B. ENOS, Charleroi, Pa.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange thoroughbred poultry, seven leading varieties, for bee-supplies or offers.
A. H. DUFF, Larned, Kansas.

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

THE STORRS & HARRISON CO. Box 318. PAINESVILLE, OHIO.

who occury the most favorable location be- tween the oceans for healthy nursery pro- ductions, extending one and a half miles along the banks of **Lake Erie** call atten- tion to their extensive assortment of

Fruit and Ornamental Trees, Shrubs, Roses, Bulbs,

Small Fruits, Grape Vines, Greenhouse Plants, Etc.

42 Years. 1000 Acres. 29 Greenhouses. Catalogues free, address as above.

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"Improvement the order of the age."

Three New Models--Nos. 2, 3, and 4.

Have You Examined Them?

Many improvements heretofore overlooked by other manufacturers. DURABILITY the first consideration.

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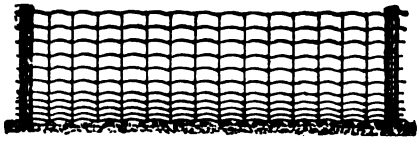

SINGLE STANDARD

However opinions may differ on the financial question, there has been no demand for a change in the fence standard. "Just as good as the Page" is current everywhere, if you can safely rely on the promise being redeemed. After all, it is better to get the genuine stuff and take no chances. Write

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

WIRE NETTING

If you want THE BEST, Made with three-strand selvage and heavily galvanized AFTER weaving, "we are the people." Price per roll; 150 running feet:

MESH.	WIRE.	12 in.	18 in.	24 in.	36 in.	48 in.	60 in.	72 in.
2 in.	No. 19	.70	1.00	1.25	1.95	2.60	3.30	3.95
1 in.	No. 20	1.45	2.15	2.85	4.35	5.75	7.25	8.65

Discount of 5 per cent on 5 rolls; 10 per cent on 10 rolls. Freight prepaid up to 40c per 100 lbs., on 5 or more rolls. This will cover cost of fgt. to most points east of the Mississippi.

POULTRY SUPPLIES.

We are America's Headquarters. Largest Stock, Lowest Prices, Prompt Shipments.

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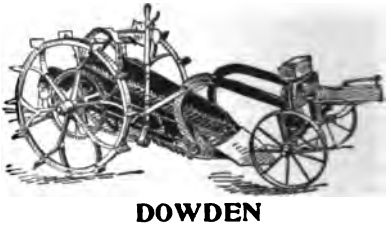

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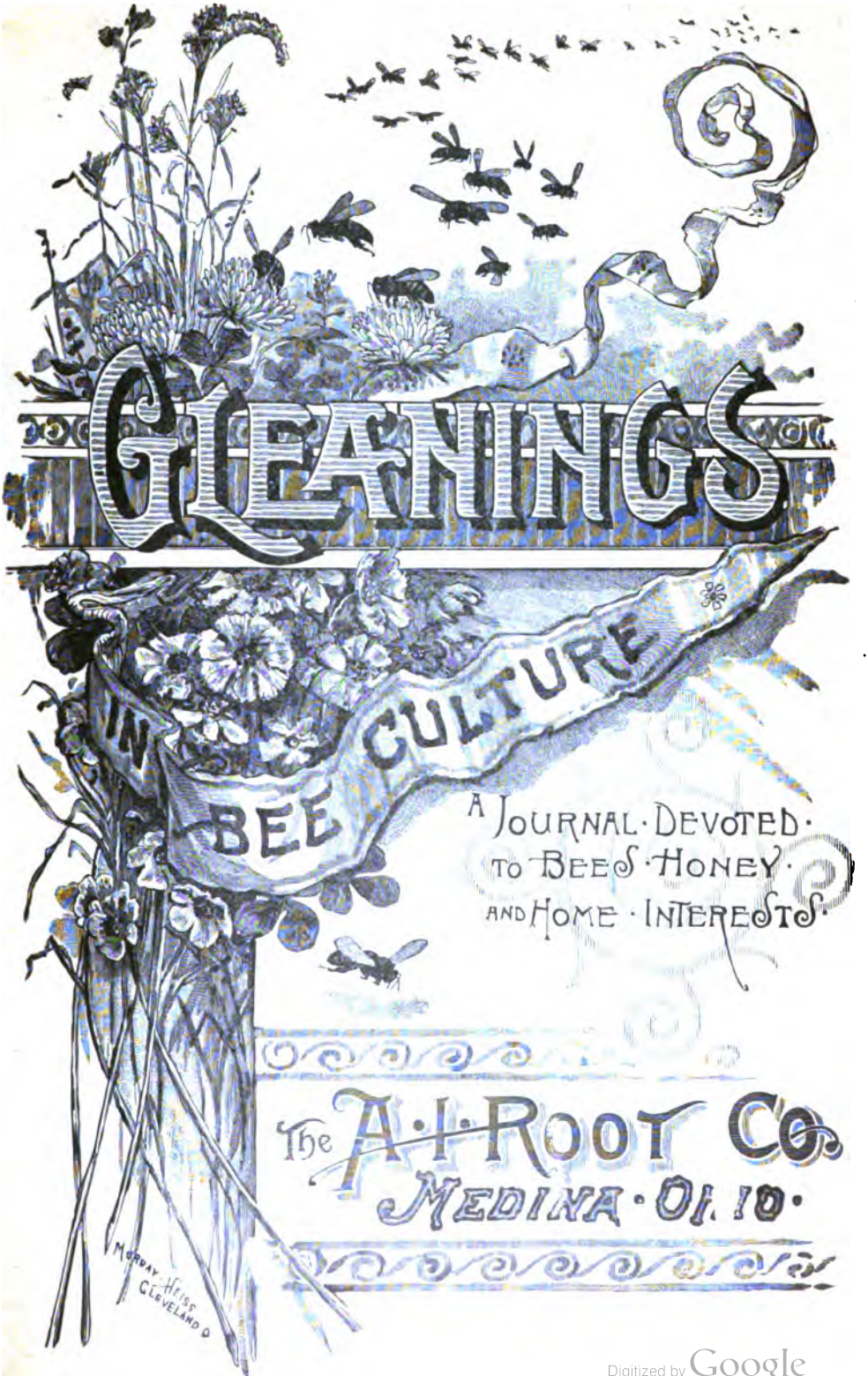

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ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
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STRAY STRAWS FROM DR. C. C. MILLER.

NOVEMBER opens up with the loveliest kind of weather—bees flying as in summer.

HAS C. A. HATCH, too, deserted the North, and is California to get all our best men? I hadn't heard he had left Wisconsin; but on p. 777 he hails from Pasadena.

THE SECTION-HOLDER has been improved by a writer in *Australian Bee Bulletin* by putting on a top-bar. That's unkind, Mr. Editor, after you had improved the wide frame by taking off the top-bar.

"ABOUT THIS TIME," as the almanac used to say, bee-keepers will begin to paint in brilliant hues the prospects for next season's crop. I'll add my mite by saying clover was never thicker on the ground than now.

PH. J. BALDENSPERGER says, in *British Bee Journal*, that, while the odor and flavor of some honeys are strongest when fresh, those of horehound and orange, weak at first, become strongly pronounced afterward.

O. B. BARROWS writes, "It does seem strange if bees can bit through a grapeskin, that my bees should stand right among my grapevines and never a bee touch a grape. A few grapes still hang on the vines, Oct. 10, but not a bee on them."

THE HORTICULTURAL SOCIETY of Northern Illinois, through its secretary, has asked me to write for them a paper on "Bees in Horticulture." Doesn't look like an irrepressible conflict in Northern Illinois between fruit-men and bee-men.

I DON'T THINK the wild sunflower of Ohio and that of Nebraska are the same. Isn't the Ohio plant perennial, and the Nebraska, like the Colorado, annual? [No, I think the plant in Ohio is an annual—at least the frost has killed them clear down; and then, besides, they look exactly like the plants in Nebraska, except that they are smaller.—ED.]

SAY, DOOLITTLE, that's hardly fair for you to weight down sub-ventilation with turning a regulator "from one to ten times a day," p. 787. I never did any regulating one time in ten, nor in thirty days. But I feel just a little shaky about sub-ventilation on account of the *quality* of the air that comes in.

JAMES BENNETT, in a sensible article in *Australian Bee Bulletin*, says, "When a person has acquired a taste for one variety of honey he prefers that variety to any other." Australians think eucalyptus the finest honey in the world; but England will none of it, notwithstanding the earnest efforts made to establish a market for it. A point in favor of home markets is the preference for home honey.

THE AVERAGE WEIGHT of 9264 sections, mostly 1⅞, with a few 1$\frac{15}{16}$, was 15.088 ounces each. They varied from less than 13 to more than 17 ounces. This was with separators. [I believe this is the first instance where ten thousand or nearly ten thousand sections of honey were weighed to get the average weight per section. I think we can safely set it down that a 1⅞ section approximates almost exactly 15 ounces.—ED.]

PERFORATED ZINC $\frac{165}{1000}$ or larger will hold the smallest queen from going up into a super; but I don't dare to trust it to keep in the largest queen if she's crazy to swarm. [If the queen is crazy to swarm, and the bees are with her in that desire, there is not very much use in putting zinc or supers on the hive. But your strain of bees seem to differ in size from those owned by the majority of bee-keepers. Crazy or not crazy, it is generally reported that the 165 mark holds the queens.—ED.]

"WHAT SIZE and style of shipping-cases do you prefer for marketing comb honey?" is a question in *American Bee Journal*. Single-tier 24-lb. cases have most votes, 12-lbs. coming in second. After all, it isn't what you and I prefer, but what sells best in our particular market. [Yes, I know you are an advocate of a double-tier 24-lb. single shipping-case; and it is possible that, with your particular market, many would prefer them; but the Chicago

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market (not your own market as I understand) so far as I can ascertain perfers the single-tier cases. The same is true of nearly all the other markets.—ED.]

I AGREE with your figures, p. 777, Mr. Editor, till you say, "If the bees reared a cell from an egg, the young queen would hatch in about 16 days." Unqueen a colony and the bees will start a queen from a larva, never from an egg. I think I never knew even a nucleus to be 16 days raising a queen, and a full colony will have a queen hatch in 9 to 11 days. That means that a larva 1 to 3 days old was chosen. [It is never wise to be positive; but I feel quite certain that I have seen queen-cells right over eggs. As nearly as I can remember, such colonies, having been queenless for a long time, were given a frame of eggs. In their eager haste they built cells over the eggs. Remember, I was talking from the time the egg was laid to the time the queen would emerge.—ED.]

THE *British Bee Journal* will "in future decline to pass an opinion on samples of honey received here unless the place from whence the honey has been gathered is stated and vouched for." That means British honey is better than foreign when they both taste alike. But somehow I admire the patriotism of the *British Bee Journal*. [The "foreign" honey referred to by our British cotemporary, as nearly as I can gather by reading the articles, is not the better quality of American honey that finds a good market in this country without being sent abroad; but it is the poorer grades sent from America and from British provinces on this side of the globe, and which are palmed off in England as British honey. This our British cousins do not like, and I do not blame them. If they had a little American "protection" over there they could stop that sort of disreputable competition.—ED.]

WIRED FRAMES will hold foundation without any fastening around the edges; but to make sure that the foundation is in the middle at every point I always fasten it on all sides. I can afford to be fussy with a thing that I want to be just right, and that lasts for a lifetime. [Is it true, doctor, that your combs will last for a lifetime? Was there not some talk two or three years ago, and from some pretty reliable sources too, that combs older than 10 or 15 years had better be melted up because the cells, from the accumulation of cocoons, would be too small to breed normal-sized bees? and moreover, doctor, you are quite liable, once in 15 years, to change to a different frame. And, again, if you were producing extracted honey, as some of your friends do, the real dark old combs would not be as good as the newer combs. —ED.]

HEART'S-EASE and smartweed, as they grow in Northern Illinois, are so much alike in appearance that a careless observer takes one for the other. But the most careless taster could never make any mistake if he bites the leaves. Smartweed smarts like fire; but there isn't the least smart to heart's-ease. [I probably was in error in stating that smartweed and heart's-ease belong to the violet family. Smartweed, at least, belongs to the *Polygonaceæ*, or buckwheat family. By consulting authorities I find there are two kinds of heart's-ease—one that belongs to the violet family, just as I stated, and another to the buckwheat family. It is the one that belongs to the last-named family that concerns bee-keepers. But I am not certain in my own mind whether we have real heart's-ease of smaller growth or whether it may be smartweed; and as the season is over, it is not possible for me to make proper identification with the botanies. Perhaps Prof. Cook, or Prof. Bessie, of the Lincoln State University, can enlighten us.—ED.]

HOW LONG from the laying of the egg to the hatching of the queen? "Queens emerge between the 17th and 18th day after the eggs are laid," was the law laid down by Berlepsch, *American Bee Journal*. Vol. I., p. 199, though Dzierzon thought that, under favorable circumstances, 17 days was enough. That was 35 years ago. Later 16 days was taught; but years ago some of us declared that was too much. The books, at least some of them, now give 15, but many still cling to the old 16. I think data were originally taken from nuclei; but results are quite different in full colonies; 15, not 16, remember, is the number. [Considering the fact that some authorities, as you say, state that queens emerge between the 17th and 18th day, and you and some of the rest think 15 is nearer right, 16 is a very good average. In A. I. R.'s early experiments he found that the queens average about 16 days from the egg, and so reported in the A B C book. It is possible that 15 might be a nearer average.—ED.]

"MOST PEOPLE like an oblong comb of honey to set before guests better than one which is square," says Doolittle, in *American Bee Journal*. It's important to know whether that's correct. Are not the plates on which honey are placed usually square or round? Would an oblong comb look best on them? Who can tell us what is liked best? [I certainly think an oblong comb, when it stands up, looks very pretty, and, in comparison with a square comb of the *same surface*, looks larger. I believe it is Capt. Hetherington who says our tastes have been educated to prefer tall buildings, and panes of glass the longest way perpendicular rather than horizontal. Mr. Danzenbaker, I believe, has made the point that sash with square panes of glass do not look nearly as well as sash having glass longer the perpendicular way than the horizontal. After all, I suppose it is a matter of taste and what we get used to. It strikes me, however, that a square comb

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would look better on a round plate than an oblong.—ED.]

"THERE IS NOT A TITHE of adulteration of honey that there was 8 or 10 and more years ago . . . Through the efforts of the different bee-keepers' associations in New York, the New England State Bee-keepers' Union, and the International Bee-keepers' Association, the evil has been put down—so much so that at this time adulteration is but seldom practiced." So says Geo. Spilter, in the *Ohio Farmer*. I wish Mr. Spilter would specify a few of the things the Union, International, and other associations have done. [I can not but wonder where Mr. Spilter has been keeping himself. He does not appear to be familiar with the recent issues of the *American Bee Journal* nor with this journal, or else he would not make a statement so wide of the real facts. If he were to go with some bee-keepers whom I could name, into the Chicago market, he would have his eyes opened. Yes, indeed, I wish Mr. Spilter would specify a few of the things that the Union, International, and other associations have done in the way of fighting adulteration. The drawing up of resolutions really amounts to nothing. What is needed is some detective work followed up by good legal talent and good laws to bring the adulterators to justice—ED.]

We can go one better than J. F. Bolden, of Tulare, Cal. He had one horse killed by bee-stings. A bee-keeper in this county had two horses stung to death.

About the same time a bee-keeper was run over by the cars at Santa Monica, in this county. He was killed. Verdict was rendered that he had on too big a jag of tanglefoot—charitably supposed to have been taken as an antidote for bee-stings.

Joseph Moffatt of this city (Los Angeles), who has made quite a fortune in bee-keeping, soon goes to Central America. He will take with him a few colonies of bees. Some portions of Central America are noted for honey production, and quite equal to Cuba.

Mexico is also attracting much attention as a honey-producing country. New migrations and developments must be looked for in the near future.

Some of our veteran bee-keepers who have been long residents of California argue that it does not pay to feed bees here during a dry season. They say let the bees die that can not take care of themselves. Those that are vigorous enough to live through will make up all deficiencies when the good season does come.

There are many, however, who differ with the veterans, and feeding is largely in practice at present in California; and we predict that those who feed will get a crop of honey another year, while those vets who do not feed will barely get their empty hives filled.

Is it not about time for that item charging Madam Mojeska with having 600 colonies of bees to be stopped from swinging around among the newspapers? The following from Dr. Gallup, of Santa Anna, settles the matter right: "I have known the madame's apiarian for a number of years. I saw the young man to-day, Oct. 7. He says she has 125 colonies, mostly pure Italians, in bad condition. The bees have been fed quite an amount, and they are soon to be moved to the valley to winter. So you now have the facts from headquarters," says the doctor.

Note what Dr. Butler says about second-hand oil-cans on page 752. It is evident that he is a thorough cleanser of cans; but the bee-keepers of California are not all Dr. Butlers, and in a majority of cases where oil-cans are used there is more or less carelessness in cleaning, and several cases of honey come under condemnation. Perhaps a well-cleaned oil-can will answer for a low grade of honey; but for the best grades of honey the trade begins to call quite loudly for the use of new cans.

Furthermore, second-hand gasoline and oil cans are not so plentiful as formerly. Oil is being shipped in bulk, and peddled out to the consumer; and while Dr. B. can buy cans for 8 cts., good second-hand cans and a case cost almost as much as new cans and cases in this southern country. On the whole, new cans and cases should be the motto of every progressive bee-keeper.

BEE-ESCAPES.

A MULTIPLE-EXIT BEE-ESCAPE TWICE AS RAPID AS THE SINGLE EXIT; DIBBERN'S LATEST WITHOUT DOORS OR SPRINGS.

By C. H. Dibbern.

I was greatly interested in the article on page 535, by Mr. Reddish, on his bee-escape; and although it is not very clear, I think I have the idea. As you request in a footnote a reply from those having had experience with escapes, I have concluded to have my say once more, although I have written so much on the subject in the past that perhaps now silence would be golden.

I believe I was the originator of the modern bee-escape, and think Mr. John S. Reese, of Kentucky, will recognize the drawing sent you herewith as similar to the first drawing sent him, only that then I used wire cloth instead of wooden boards. This was in 1889, and I have been experimenting on this line ever since, having tried more than one hundred different

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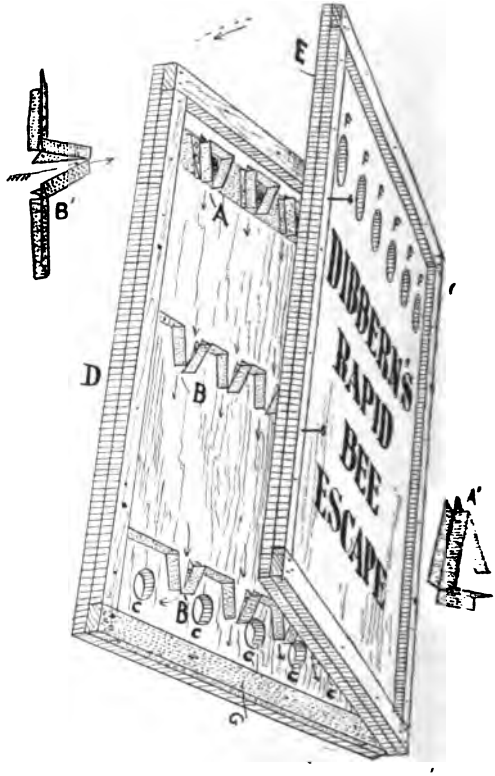
designs. During all this time I have closely studied the action of the bees, when escapes were in use, with a view to making escapes that would work more rapidly and more certainly: and I now feel certain that I have such an escape. I long since discovered that Mr. Porter's claim, that one of their little single-entrance escapes, being as rapid as if two or more were used, is a mistake. I have used four of the Porter escapes, as well as from four to six of some of my own patterns, and found quite a difference in the length of time required to empty a super. Then it always struck me as being just a little cruel to take a super full of honey, and crowded with bees, and cut off all chance for air except what little can come through a single Porter escape. I have several times done this in hot weather, when the bees would soon appear running from the hive-entrances, black as ants.

In experimenting with escapes one would think that it would be easy to determine which is most rapid; but that is not the case. There is so much difference in the condition of bees, or their disposition to leave, the time of day, or the weather, that one must not jump at conclusions. I think Mr. Reddish will be disappointed if he expects his escape to work 24 times as rapidly as the single-entrance escape. Indeed, I have found the number of entrances or exits to escapes to secure the most rapid emptying of supers to be quite limited. When too many openings are made, bees seem to lose their desire to leave at all; and that was the trouble when I tried wire cloth for divisions and escapes.

One way to hasten the disposition of bees to leave the super is to raise the top boards over supers slightly, and blow smoke under it, and wait, say, half a minute, then slip the escape-board under. The first puff of smoke will send many bees down into the hive; but if you wait too long many more will return, and they will, perhaps, be slower to leave again. If a little smoke is thus used I have cleared the bees from a dozen or more cases, at my out-apiary, in less than three hours, and been off for home by using the escape I will now describe.

I simply use two covers for supers, which are made of ⅜-in. boards with a ⅜ bee-space on the upper side. In the upper board I simply bore six ¾-in. holes an inch or two from one end. In the lower board I bored six similar holes in the opposite end for exits. Now in the ⅜-in. bee-space that will be between boards I make three series of obstructions with openings all pointing to the exit-holes, such as we have long been used to for window bee-escapes. I use perforated tin to make this fence-like partition. I find that the distance has a good deal to do with bees finding their way back. It should not be less than 10 or 12 inches from the entrance-holes to the exits. The boards can be kept permanently for bee-escapes, or they can be used for super-covers by simply laying a piece of tin over the holes. I do not claim that this escape will work six times as rapidly as the Porter, but I believe it will work twice as fast; besides it affords all the ventilation the strongest colony of bees will ever require.

As most of us tip our hives forward I think something is gained by placing the escape so the entrance-holes will be on the lower side, over hive-entrance. Then the bees have to run up hill in passing the escapes, which seems to be the more natural way for them in their leaving the super. It will work just as well where whole hives are used for extracting, providing queen-excluders are used.



I want to say, in regard to the Jardine escape, that his gates will surely become stuck up with propolis in a short time in actual use. I have a pattern almost like it that I used some three or four years ago, but have long since discarded; and my trap-doors, being made of fine tinned wire, were not nearly so apt to become gummed as the Jardine, which I suppose is tin.

I want to say that, in my escape, now described, I use no traps or springs of any kind. The passages are just plain openings, about ⅜ in. wide, so that a drone can easily pass through it. If you will watch a bee in passing the Por-

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ter springs, or traps of any kind, she will usually make two or three attempts before passing through. Even in my escape, where there is ample room, they often hesitate in passing through. There is yet plenty of time to try my plan this season, and I shall be pleased to hear reports. There is no patent on it, and it infringes no one's rights.

Milan, Ill.

[See answer to the next article for footnote to this.—ED.]

MULTIPLE-EXIT BEE-ESCAPE NO ADVANTAGE OVER THE SINGLE.

AN INTERESTING SERIES OF COMPARATIVE EXPERIMENTS.

By R. & E. C. Porter.

Editor Gleanings:—In response to your request in your issue of July 15, for our views as to whether increasing the number of escapes used to the board, or increasing the number of exits of the escape shortens the time occupied by the bees in leaving the super, permit us to say, as we have said before, that, previous to bringing out the Porter escape, we made extensive and very careful comparative tests to determine this; and while it seemed reasonable to suppose that thus enlarging the means of egress should correspondingly facilitate the departure of the bees, yet our experiments show that neither the one nor the other has the slightest effect in this regard; and, further, that neither the use of more than one escape to the board nor the use of more than one exit to the escape is of any advantage in any way, providing the one exit used is of such construction that it does not become clogged with dead bees.

While our use of escapes in the regular work of the apiary every year since has been of such a character as to expose the error of this conclusion, if it existed, yet our experiences therein have confirmed rather than disapproved it; nor has any thing been brought out by any one else to lead us to think that we were in the wrong.

The two experiments of Mr. Reddish, detailed in GLEANINGS of July 15, throw no light on the question, as they were not comparative; and, further, that it is not at all unusual for all the bees, under favorable conditions, to pass from the super through a single-exit escape in from 1½ to 2 hours. Tests of different forms or sizes of escapes, to be of any value as showing their relative merits, must be comparative, and made with the same colony at the same time of day, and under approximately the same conditions as to weather, honey-flow, size of super, and contents thereof.

In the summer of 1893 this matter was brought up in the *Review* by Mr. R. C. Aiken, of Colorado, who was of the opinion that the single-exit Porter escape was not of sufficient capacity, and we, at this time, made further experiments in the same line as before, and with the same result, using our single-exit escape to the board in comparison with as many as a dozen single-exit escapes to the board, and also with escapes having as many as fifteen exits. To enable Mr. Aiken to test the matter for himself, we sent him a fifteen-exit escape with several of less capacity. After having tested it, in a limited way, in comparison with our single-exit escape, he writes us that he could not see that the large one expedited the matter in the least. After further trial, in a conversation with the writer at the Chicago convention, he confirmed this opinion. We also, the same summer, mailed several fifteen-exit escapes to others, including one to Hon. R. L. Taylor, but do not know that any of these were ever used. When mailing escapes to customers that season, we sent a number of them, in addition to the escapes, an escape having exits at both ends, but otherwise practically the same as the regular form, and asked to have it tested comparatively. But one of these, however, Mr. H. J. Lingenfelter, of Glen, N. Y., favored us with a report. He wrote as follows: "The double-exit escape works very well, but I prefer the single, as it clears the sections from bees sooner than the double. I can account for it in but one way; and that is, when the bees start from the super they set up a call from each end of the escape, which seems to confuse them, and they run back and forth instead of passing out as they do from the single exit."

In the past ten days, to verify the results of our former experiments and experiences, and to eliminate possibility of error in this matter still further, we have made and thoroughly tested, in comparison with the regular Porter escape used singly, the sixty-exit escape, which we have forwarded to you for further trial, should you care to make it. The tests in this instance were made as follows:

Two strong colonies in ten-frame L. hives, having 6½-inch extracting-supers above, about half filled with honey, were selected, and at 8 A. M. the multiple-exit escape was placed under the super of one and a single-exit escape under the super of the other. At intervals of an hour the supers were examined and the results noted. When the bees had all passed out, the escapes were removed, and the bees allowed to resume their normal condition in the supers.

At 8 o'clock the next morning the escapes were again placed under these supers, but in reverse order, and the results noted as before. The experiment was further continued in the same way with two other hives of the same size, but having two 6½-inch supers on each, the escapes in each instance being placed below both of the supers; but in no one of the four tests could we detect that the bees passed out

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through the large escape any sooner than they did through the small one. The only difference we have ever been able to detect between the workings of escapes of different capacities is that, with some colonies, large escapes seem to produce less excitement of the bees in the super, or less anxiety to get out of it, than small ones do, though with many colonies there is no perceptible difference in this respect. Here, it may occur to some one, that the one thing necessary to secure greater rapidity in the working of the escape is to use a large one with a double set of springs or two large ones, one above the other, so that communication between the bees in the super and those below may be entirely cut off; but we have found that such an arrangement is of no advantage.

To use a large escape, and smoke the bees down through it into the brood-chamber, is impracticable, as bees thus blinded and bewildered with smoke are very slow to find the exits of any escape however large or numerous. The smoking-out can be accomplished much sooner without the escape than with it. In either event we regard such excessive smoking as very objectionable with either comb or extracted honey.

Your statement as to its usually taking anywhere from 10 to 24 hours to get the bees out of the super by the ordinary Porter escape with one exit, accord nearly with our experience, if you refer to supers of full-depth L. extracting-combs; but if you mean supers of completed sections, it is decidedly at variance with it. The latter we find are, as a rule, freed from bees with this escape in from 3 to 5 hours, and this is the experience of others so far as we have heard it. One case in point:

Dr. Geo. Locke, of Newburg, Ind., a few days after we filled his order for a single escape, wrote us as follows:

Gentlemen:—Here comes the report of the work of the Porter spring bee-escape. I put the escape under a super of sections late last night, and this morning there was not a single bee in it. At 8 A. M. I put it under another super, and at 11 o'clock the bees had all passed out. In the afternoon, at 2 o'clock, I put it under another super and removed it at supper-time without a bee. The escape is worth $5.00 to me. It will satisfy the worst growler. Inclosed find money order for $1.00, for which please send five more.

Lewistown, Ill., Sept. 29.

[The Porters have all along insisted that there was no advantage in a multiple-exit bee-escape over one having a single exit. I asked them last summer whether it were not possible there was some mistake. To test the matter further they made, as mentioned, a *sixty*-exit escape; and after testing it they sent it to us, as they state. We repeated the experiments in our own apiary, and the results were the same as the Porters had.

But why is it that Mr. Dibbern's experience seems to be different? I can not say; but I should be inclined to think he may have been deceived. I notice that Mr. Dibbern is not positive, but says he *believes* (italics mine) that his escape will work twice as fast as the Porter. I do not find that he anywhere made *comparative* tests—that is, trying an escape on his plan with a single exit and one having the number shown in the engraving. The plan tried by the Porters—namely, of putting one of the two kinds of escapes on each of two colonies as near alike as possible, and then alternating the escapes, is the correct way. If Mr. Dibbern had tried this plan I think he would find little or no difference in the relative working.

One thing should be noted; and that is, Mr. D.'s escape is different in principle, and possibly on his plan there would be a real difference in the relative rapidity of the single and multiple exit escape. But on the Porter plan (flexible springs) I feel quite sure that the single exit is just as rapid and certainly cheaper.

I wish to corroborate Mr. Dibbern's statement—namely, that the hinged-door plan of Mr. Jardine's escape is not a success, in that the hinges become propolized and so fail to work. Our bees did this very thing.—ED.]

MAMMOTH BEE-MOVING WAGONS.

METHODS OF MANAGEMENT OF ONE OF THOSE GREAT CALIFORNIA BEE-KEEPERS.

By M. H. Mendleson.

Friends Root:—I send you the photos of two of my moving-racks. Heretofore I have been at a disadvantage in moving bees with rigs of insufficient capacity to make time and profit. As you will see by the size of them (dimensions given under cuts) I can move a good-sized apiary with entire success, no matter how strong the colonies are. Two men can clamp the frames of 250 or more colonies, put screen frames over the tops of same, in one afternoon, ready to load when it's time to put on screened blocks, by dusk or before.

I have a set of steps that slide in between the bed-pieces of rack. I pull out my steps, and load up by setting hives in, five in a row, across the rack, entrances facing front. Ten of these rows cover the first tier of large rack, piling two to three tiers high of single stories, and from one to two tiers high of double stories. The small rack carries from ten to twelve less to the tier. I have no binding-rod; slide in my end-gate, and drive on. I always have a smoker lighted in case of an emergency; but if the colonies are properly closed I seldom have use for it.

I have a five-ton set of Spaulding springs under the large rack, and three springs under the small one. The rigs being so large and heavy, when any one wheel strikes a chuck-hole there is an even, gentle rock to the whole rack, making it almost impossible to chafe off any lids or screens. These screens are made ⅛ in. less in size (all around), than top of hive; side pieces of screen-frames are made of spruce, one inch square. The end-pieces are of the same; are 1½ in. high, and rabbeted down ½ in. to meet side pieces. A ½-inch rabbet is

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taken from the ends so as to nail from both ways, to strengthen the frame. When the screen is tacked on there is a 1¼-inch space for bees to cluster above the tops of the frames of the hive; and the ends being ½ in. higher when lids are put on, there is a ½-in. space between the screen and the under side of the lid, giving the necessary ventilation or draft of air over the bees. When on the wagon the draft of air is across. If the screens were made within ¼ in. of the tops of the frames, the bees would then have a bearing to crowd in, and smother

MOVING-RACK FOR HAULING A WHOLE APIARY.

Floor-space, 7 x 16; side slats, 3½ ft. high; Spaulding springs, 3 tons capacity; carries 3 tiers of single-story 10-frame Langstroth hives, 16 x 23 bottoms. Bed-pieces 3 x 8; cross-pieces 3 x 4, strong and firm enough to hold up 6 or 8 tons; side-pieces for stake-irons, 3 x 4 x 16; seat-standards, 2 x 6; stakes, 2 x 3; slats, 1 x 1½ riveted to stakes. The flooring is thoroughly bolted. No. 1 matched flooring; all made from No. 1 selected Oregon pine, or fir, and thoroughly bolted. Made at my apiary, spring of 1895, improved plans.

MOVING RACK FOR HAULING A WHOLE APIARY.

Floor space, 7 x 19½ ft.; slats 4 ft. high; carries each tier 50 colonies, or 100 double-story colonies. I have had 150 single-story colonies on it at one time. Capacity of springs, 5 tons. I estimate the weight of this rack at 1000 lbs. The rack will fit any 44-inch bolster of lumber wagon. A set of broad steps slide in under for loading. Bed-pieces, 3 x 8 x 20; cross-pieces, 3 x 4; side-pieces for stake-irons 3 x 4 x 20; stakes, 2 x 3 x 4½; slats, 1 x 2, all riveted seat standards, 2 x 6, thoroughly bolted, and very firm made at my apiary, spring of 1895. Mr. J. B. Cherry, an old bee man, is seen at left of driver.

to death. Four six-penny nails fasten these frames to hives, driven down with the heads left so as to draw out easily with a hammer.

I am trying to devise some plan to clamp these screen-frames on so as to save time and confusion, and marring of frames. Vandeusen clamps do not do, although I shall try them again.

It will never do to crowd a real strong colony from a two-story to a one-story hive, for moving; but with the medium strong I can do so. If hot weather, I should not crowd them.

Now take a careful driver, and you can move with success. I am almost always with these big teams to see that all goes well.

When moving so many bees at one time, if set in one apiary, to avoid a great confusion of bees they should be released in the evening, and the next morning they are quiet and not as cross. In hot weather I prefer the night for moving.

I am using the Porter escape with success. Bee-men are certainly behind the times if they can afford to and then do not use them. A thorough trial is all that is necessary to convince any one. Of course, with heavy honey for extracting it does not come out as clean; but I prefer them to brushing bees, and then you can avoid killing so many bees; and when the honey season is closing, and bees beginning to hang around the extracting-house, and follow you around, inclined to rob, then is when one of the great advantages of the Porter escape comes in. With me, near the coast, it is much cooler, and takes much longer for them to leave the super; but in the heat of the season, if put on in the evening, the super is clear by morning, with but few exceptions.

I'll try, at my first opportunity, to give my mode of preparing bees for the honey harvest, extracting, canning, etc.

Ventura, Cal., Oct. 3.

[Knowing that our friend Mr. Mendleson was one of the most extensive bee-keepers in the world, and one who does things on a mammoth scale, I have been trying to get him to write, giving some of his methods of management; and it is with no little pleasure that I am now permitted to present the first article of the series. That his business is conducted on a mammoth scale is evidenced by the two bee-moving wagons shown herewith. Why, think of moving a whole apiary of 150 colonies at a *single load!* and, as if two wagons were not enough, he has *two* such! Why, friend M., you fairly make those of us who find a 25-colony wagon large enough for our needs feel small. Yes, I should think you would want to go along with the load or loads; for *if* the bees of *only one* colony should break loose, sting those six horses, and if those horses should take a notion to run down one of those rough mountain roads, and if the wagon should tip over—my, oh my!! *I* shouldn't want to be *anywhere* within a mile. I am well aware that I have stuck in a lot of ifs; but I suppose you go along so that *if* the bees break forth from one colony you will be on hand with that smoker to stop further proceedings instanter.—ED.]

Those bee-escapes: It is unaccountable how some bee-keepers, good ones too, feel that they can get along without them.—ED.]

SUPERSEDURE OF QUEENS.

SHALL THE BEES OR THE APIARIST TAKE THE MATTER IN HAND? OLD AND YOUNG QUEENS.

By Dr. C. C. Miller.

Some think it is best to see that no queen older than two years is left in the apiary, while many of our best bee-keepers believe in letting the bees take care of the matter to suit themselves. I must confess I don't know for certain which is best. Generally I have allowed the bees to choose their own time for superseding. Of the 64 queens that started the season this year in the home apiary, 6 were reared in 1892, 25 in 1893, 8 in 1894, 24 in 1895.

Four of the 1892 queens were superseded in April or May, and the six averaged very poor work in the supers, although two of them did good work. Although there were exceptions, I got my best work generally from the 1895 queens. It is noticeable that the 1893 queens exceeded in number those reared in 1894 and 1895. Especially noticeable is the very small number of 1894 queens, only 8. I think that may be accounted for by the difference in seasons. The year 1894 was a very poor season throughout, the bees giving no surplus, and not getting enough for winter. So there were not many queens superseded.

The year 1893 was a year of some surplus, so there were a good many supersedures. In 1895 the early crop was a failure; but the fall flow was fine, so there were supersedures enough. In general, it seems that the bees supersede their queens after a hard season's work much more than after a season of light work. Is it because the queens lay more in a good season?

Without going into particulars, I may say that I am well satisfied that it makes a good deal of difference whether a queen is superseded in the spring or the fall. Geo. L. Vinal may be right in thinking late-reared queens superior; but even if they are no better it is not hard to see why a colony changing its queen in April or May will not do so well. Take two colonies alike, and let one of them change its queen at the time when each has its hive about half filled with brood. No eggs are laid in the hive for a week or two, at the very time when it's most important, and one can easily believe that the colony which keeps its queen will surpass the superseding one.

But when the superseding occurs in the fall (and I think by far the greater part occur then) the hive is filled with bees, and the loss of a week or two in laying is scarcely felt. Moreover, the young queen lays enough longer in the fall to make up the deficiency; and this

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later laying leaves the colony, in the opinion of many, in better condition for wintering, because of the larger number of young bees.

Some queens are better at four years old than some others at a year old; and as the bees seem to have good judgment, and supersede usually at the time when good queens can be reared, and when such rearing will be at least cost to the honey crop, it seems pretty good practice to leave the matter in their hands, especially as that is the easiest way for the bee-keeper. But then there are exceptions, a worthless old queen being sometimes retained, and sometimes being superseded at a loss early in the season, so there's a good deal in favor of at least sometimes taking the thing into one's own hands. If Mr. Doolittle is right, it might at least be well to make sure each fall of the supersedure of each queen whose colony had done poor work during the summer. He says if you put a queen-cell in a super about the close of the honey-harvest, the old queen will be superseded.

TWO QUEENS IN ONE COLONY.

It is nothing unusual for a failing queen to remain in a colony for a time with her laying daughter, but I have at present an exceptional case. June 19 I started a nucleus by putting into No. 36 a frame of brood with adhering bees and a three-year-old queen. June 23 I found the hive deserted by all but a very few bees. I don't remember how much I looked for the queen; but at any rate I didn't find her. I then put into the hive a frame of brood and bees with a two-year-old queen. This was a very yellow queen. July 8 I was surprised to find in the hive a very dark queen, the three-year-old queen I had first put into the hive. Looking further I was still more surprised to find the yellow queen. No mistake about it, there they both were, doing duty peacefully together.

A curious feature of the case is that the yellow queen shows she has had pretty rough treatment, her feathers being gone as well as her wings, except just a shred of one wing, while the dark queen shows no trace of ill usage. As there were scarcely any bees in the hive except those put in with the yellow queen, one would expect the other queen to be the victim of ill treatment.

To-day, Aug. 1, I have been down to the hive, and both queens are all right after 39 days of friendly association.

Marengo, Ill., Aug. 1, 1896.

STAYING UP FOUNDATION.

HOW WOOD SPLINTS HAVE BEEN TESTED ON A LARGE SCALE, AND FOUND TO BE A SUCCESS.

By B. F. Averill.

Noticing the importance that Dr. Miller attaches to the idea of using small sticks for supporting comb foundation in brood-frames, I give below a plan I have adopted, and tested extensively for many years—almost since comb foundation was invented. My frames have a slot in top and bottom bars. The gauge of saw with which the slots are sawn corresponds to the thickness of the splints to be used—about ⅛ in. wide; and the thickness according to the strength of material used is a suitable size; and ¼ in. longer than the distance between top and bottom bars after the frames are nailed up is the appropriate length. The *number* of splints to be used depends upon the thickness of the foundation, thin foundation requiring more splints. To put in the foundation, lay four or five of the splints with the ends fitted into the slots, and twice the distance apart that splints will be required; then lay the foundation upon these, springing the alternate splints into place as nearly midway between as possible. Then, having the foundation at a proper temperature, roll the splints, imbedding them firmly. A board of proper dimensions, and in thickness equal to half the width of frame material, will be required; also a roller, which can be conveniently made from a section of small spool by sawing off the ends and fitting it to a handle. No waxing of splints is necessary, as eggs deposited upon splints hatch, and the larvæ mature quite as well as under ordinary circumstances. It is necessary to have one side of the foundation very straight, and fitted closely to the top-bars; otherwise the combs are liable to bulge before being built out, and fastened at the top. I utilized splints for upward of 2000 frames in the season of 1885 at an apiary I established near Beulah, Miss.

The combs, with a few exceptions, where they were carelessly set up, were the most perfectly built that I have ever seen. There were a few irregular cells; but, having experimented with a desire to know, I found that this defect could be obviated by having the combs drawn from foundation sized to bring the cell-walls in perpendicular alignment with the splints. Under these conditions a splint nearly covered a perpendicular row of cells, making the arrangement of the separating walls of wax to be built so accurately in line with the splints that no defective construction of cells could be observed.

The time required to fasten foundation is insignificant. Four or five times as many frames can be filled by this plan as a man can possibly wire for foundation, and no considerable pains or skill is required. Combs are more rigid, and better adapted to uncapping where splints are incorporated in them, than those built in wired frames; and this method of fixing foundation can be safely employed to any extent with frames of ordinary proportions. I have handled many thousands of frames in numerous apiaries which I have owned; and where I have been employed, these foundation splints always gave better satisfaction than wires.

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Now that the idea has been broached, I give this information thinking others may wish to adopt the plan, and that my experience may be of benefit to the bee-keeping fraternity. The apiary where I used splints most extensively is now owned by Mr. E. T. Divver, of Beulah, Bolivar Co., Miss., who will, no doubt, be willing to give any information desired regarding the durability of the splints in frames of nearly 200 colonies, that have been used for extracting ten years. I have combs in service in my apiary in Massachusetts that were filled with comb foundation upon this plan, and they are in good condition after fifteen years of service.

Howardsville, Oct. 26.

[The use of saw-kerfs in the top and bottom bars to receive the splints is an improvement on the Dr. Miller plan; and, by the way, you have ruthlessly taken from the doctor all the credit for the originality of the wood splints in place of wire. But I doubt if you can insert sheets of foundation in brood-frames and wood-splint them faster than we can wire and fasten the foundation on the wires. When this latter is done by electricity the work is done about as rapidly as the foundation can be dropped on the wires.

I can scarcely believe that combs stayed by splints will be as perfect as those held by wires. Some years ago we used what we called folded tin bars to support the top-bars of the brood-frames when we wired by the old perpendicular plan. There was always a sort of "dead furrow" in the built-out comb right over that bar. It is true, that it was a trifle larger than the splints. But in justice to the doctor I must say that there are no "dead furrows" in the sample wood-splinted comb sent us by Dr. Miller.—ED.]

Heads of Grain from Different Fields

REPORTS OF THE HONEY CROP AND PRICE DETRIMENTAL TO THE INTERESTS OF BEE-KEEPERS.

Mr. Editor:—I do not know that I am right, but it appears to me as if having reports from all parts of the country, of the size of the honey crop, and selling price, works harm to the producer. Supply and demand in any given locality ought to cut some figure in the price. Look at Dr. Miller. He has had off years enough to satisfy any reasonable person, and this year reports ten thousand pounds. Suppose his report had been: "Marengo, Ill. Short crop. Dr. Miller, 1000 pounds." Another producer, in a favored locality, reading this would conclude that Marengo would be a good place to ship honey to, and send forthwith a carload. The price that Dr. M. could get for his small crop would be infinitessimal.

I reported the honey crop at Peoria, Ill., as "indifferent." After this there was quite a fall flow of honey up and down the Illinois River, gathered from wild flowers growing on lands subject to overflow. Before the frost had destroyed the bloom, and the honey was removed from the hives, our commission houses were filled with honey from farther north. I do not claim this market; but as long as I keep bees I shall sell the product at Peoria, Ill.

It looks like folly to me to ship honey to Chicago, and then have it shipped back to dealers in the same locality where it was produced. Our efforts should be to bring the producer and consumer as near together as possible. The consumer pays 20 cents per pound for his honey, and the producer gets 10.

WILLOW-HERB—EPILOBIUM ANGUSTIFOLIUM.

The botany tells us that this is one of the plants that spring up abundantly everywhere northward, where forests have been newly cleared and the ground burned over. It has a long succession of small pink-purple flowers, growing in corymbs or panicles, terminating the branches. My first acquaintance with this plant was while traveling from St. Johnsbury, Vt., to Lake Memphramagog. Most of the country was uncultivated, and covered with a small growth of trees. Whenever we came to a place where the woods had been recently burned over it was growing as thickly as clover in a meadow. The seeds grow in a pod; and when they open they give to the winds great numbers of downy tufted seeds

The natives called it fireweed. I brought home some seed and let it loose in the wind of Illinois, but I've never seen a plant from my efforts. It is a great source of honey in Maine.

When fixing up the bees for winter, and had pried off the slotted honey-boards, I found the space above the frames filled with rich dark honey. I pried off the honey-board, laid it at the entrance, and with a wide chisel removed the honey from the top of the frames on to it, and the bees carried it back into their hives. All the hives are very heavy with stores. Bees are still carrying water, Oct. 26.

Peoria, Ill., Oct. 26. MRS. L. HARRISON.

[It may be you are right; but the editor of the *Bee-keepers' Review* refers to that collection of statistics giving the honey markets of the country as "the most valuable and practical reading that has appeared in the journals for some time." From our private letters we have received a good many words of commendation for the same thing.—ED.]

PROF. COOK SUSTAINED; HONEY NOT POISONOUS.

At present I stand on the same ground as Prof. Cook. I have taken five bee-journals for years, and I have never seen a report containing conclusive evidence of the existence of poisonous honey, ripened and sealed by the bees. That poison sometimes finds its way into honey is not very surprising, when one sees that in nearly all cases (perhaps all) the honey reported as being poisonous comes from box hives (current September GLEANINGS, page

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637). I have been familiar with the methods of box-hive bee-keeping from my childhood, and I don't care to experiment with their product personally. I have read and re-read the article of Dr. Stell, of Mexico, and am still trying to find out what possible connection his deadly compound had with "laurel honey."

Branchville, S. C., Oct. 30. A. T. PEETE.

[Nectar partakes very largely of the properties of the plant from which it is taken. For instance, honey from onions in blossom has a strong flavor of the onion or the plant itself. Dr. Stell made a tincture of the mountain-laurel leaves; it was fed to the bees in syrup, stored in the combs, extracted again, and, as reported, poisoned both the doctor and his helper, who had eaten it. The "missing link" that you fail to see is that the tincture of leaves and the nectar of the blossom from one and the same plant are much the same, though it would be fair to assume that the former might be the more virulent. If it were only half or one-fourth as much, *I*, for one, would prefer to let it alone. There have been a good many cases of poisoning from eating honey from poisonous plants, and it didn't come from box hives either. But why should box hives be liable to receive poison any more than movable-frame hives? If honey is poisonous it must be from the source.

The United States government through its Department of Agriculture, I am glad to say, is investigating all these cases, and ere long we shall see what the Department has to say. In the mean time it would be very wise to err on the safe side.—ED.]

FROM NEW ZEALAND.

Foul brood is very prevalent in this country. It is impossible to keep one's apiary free, owing to robbing done from box hives. Absconding swarms take up their abode in rabbit-holes on the hillsides, and die out from the disease. I keep it under by melting down old combs and rolling out fresh foundation. Some seasons the yield is very good, principally from white clover. One season 16 colonies yielded over 100 lbs. per hive, and increased to 32.

JOHN MOODIE.

Outram, Otago, N. Z., Sept. 5.

MRS. DANIEL COXE'S LARGE HONEY-YIELD.

Drifton is situated in Luzerne Co., Pa., in the heart of the coal regions of the State. As far as the eye can reach in all directions, great culm banks of coal dirt look like natural mountains out of the surface of which even weeds seldom have a chance to grow. The town itself stands several hundred feet above sea-level, and, with the exception of a few fields of cultivated ground, one would think bees would hardly find sufficient food to supply their annual needs. To show how the Lord provides the nectar in the flowery kingdom in ways past finding out by man, Mrs. Daniel Coxe, of this place, had 11 colonies, spring count, that gathered 2000 lbs. of honey, and her faithful gardener, Luke, who helps take care of the bees, was delighted when super after super was taken off, just filled with beautiful capped honey. WM. A. SELSER.

Philadelphia, Pa.

W. W. M., Fla.—You say you have four small colonies or nuclei that you desire to unite in one, and wish to know the best method. If they are scattered over the yard, some night put the bees, brood and all, from the several nuclei, into one hive. If this is not large enough, use two stories. The next day a great many of the bees will return to their old stands, where you should have awaiting them a hive to receive them at each old stand, with perhaps one empty comb. The next thing is to shake these all together into one box, smoking them a little to prevent fighting, and then dump them in front of the hive where you desire to leave them all together. You may have to do this on three or four successive days before you can get them to stay; and even then some of them will persist in going back. Doolittle would advise, after shaking the bees all together in one box, keeping them in a dark cellar over night, and then the next morning shaking them in front of the hive. This may be better.

D. K., Kan.—Sometimes a queen will behave as you relate in your letter. It may be because she is frightened. The method of introducing now is not to release the queen in the hive, but put her into an automatic cage and let the bees eat out the candy and release themselves. We have found that, when the apiarist himself opens the hive and lets the queen out, the general disturbance not only frightens her but causes the bees to attack her. It is very possible that in your case the bees were not queenless, or, rather, that they had something in the hive in the way of a queen-cell, virgin queen, or laying worker, which was regarded as a queen. In this event they would show hostility toward the queen; and it would not be surprising if she should try to get out of the hive, and behave as you describe. Most queen-breeders send out cages so arranged that the bees will release the queen in from one to three days. When this is done by the bees, and they are absolutely queenless, the new one is usually accepted.

In the case of the queen you obtained from the party mentioned, we would say that you ought to have sent in your complaint to him inside of 30 days, to the effect that she would not lay. All reliable queen-breeders are supposed to replace such queens. When complaint is made after 30 days, the breeder is under no obligation to send another, although we usually do so.

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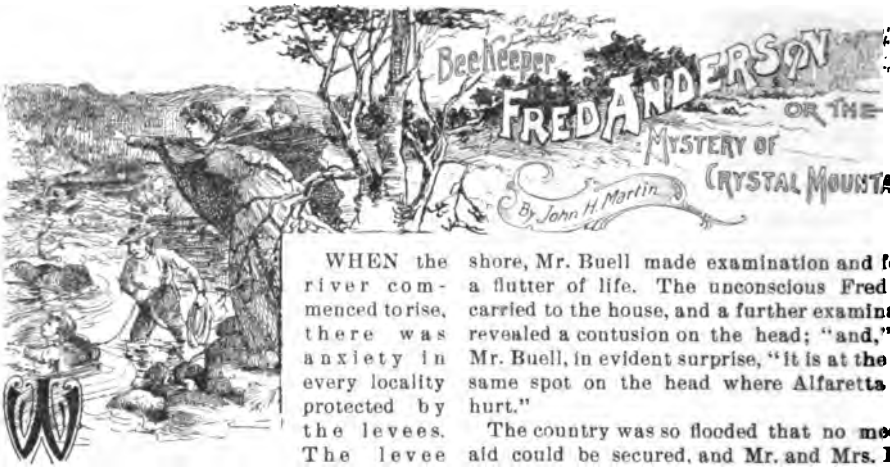

WHEN the river commenced to rise, there was anxiety in every locality protected by the levees. The levee below Mr. Buell's protected thousands of acres of land from overflow. The water had reached the danger-point, and Mr. Buell and several interested neighbors had been up all night patrolling the levee, filling depressions and giving needed strength to the weak places.

The continued floods were, however, too much for the puny efforts of man, and near morning the levee went out with a roar, and much of the water on that side of the river was diverted into the new channel.

When the levee gave way Mr. Buell and the men went into the district liable to overflow, to save such animals as might still be lingering there. All manner of debris was now floating more leisurely, while the water was seeking new channels. Gimp called Mr. Buell's attention to several bee-hives floating by.

"Those are surely much like Fred's hives," said Mr. Buell. "But, dear me! it would be impossible for the river to rise to such a height as to wash them off that chalk butte."

Mr. Buell's cogitations were here interrupted by shouts. Alfaretta had gotten out early in the morning, as was her habit, and now came running along the shoal water, shouting and gesticulating. She soon came up to Mr. Buell, and, grasping his arm frantically, and pointing out into the water, exclaimed, "Our Fred! our Fred!"

Gimp had comprehended the situation before Mr. Buell, and, regardless of the floating obstacles, plunged into the water and made for a large object some distance out in the current.

Fortunately the water was not deep here, and, after an heroic effort, he brought to shore the raft. Alfaretta, Mr. Buell, and others who had been attracted to the spot, saw the limp form of Fred Anderson covered with mud, and apparently lifeless. His feet were so entangled in the bent and broken cross-pieces of the work-bench raft that it was some delay to disentangle them; but when released and laid on shore, Mr. Buell made examination and found a flutter of life. The unconscious Fred was carried to the house, and a further examination revealed a contusion on the head; "and," said Mr. Buell, in evident surprise, "it is at the very same spot on the head where Alfaretta was hurt."

The country was so flooded that no medical aid could be secured, and Mr. and Mrs. Buell applied restoratives, and cared for Fred with the skill that their experience had given them.

Alfaretta was a constant attendant and an indispensable help in applying cooling solutions to the head. Gimp was also an anxious watcher and ever ready helper; but all day the stupor continued.

"His condition," said Mr. Buell, "is much like Alfaretta's—the contusion and now the long stupor."

"Yes," replied Mrs. Buell, "and I am anxious for his waking. And, oh!" said she, clasping her hands, "what if—"

"My dear," interrupted Mr. Buell, do not borrow trouble; it surely comes fast enough without looking ahead for it. There will be a change soon, and we do hope for the best."

It was near morning, or about twenty-four hours from the time of the accident, that Fred began to show signs of consciousness. After several restive moments he opened his eyes, stared wildly, clutching the bed-clothing. Mr. and Mrs. Buell both spoke soothing words to him; but his vision was beyond them; he was living over again the wild ride on the turbulent river. Trying to rise, he shouted, in a husky, intense voice, "Matt Hogan! O Matt Hogan! come back! come back! Away, black fiend Dawson; your slimy hands away! help! help! O good angels! help—away! The fiend has clutched him. O Matt! dear Matt! lost, lost!" and with the severe exertion he fell back to his pillow with an incoherent laugh, and into unconsciousness.

"Sure, sure, this is terrible," said Mr. Buell. "Matt Hogan must have been upon the raft with him, and is lost."

"There can be no other interpretation to his words, though uttered in delirium," said Mrs. Buell. "It is terrible—terrible."

"It is certainly terrible," said Alfaretta; "but how much more terrible it would have been had we lost our Fred!"

It was again several hours before Fred show-

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ed signs of returning consciousness. Meanwhile Alfaretta had been very quiet, watching the sleeper with intense interest. As her coherent remarks indicated, there was a mental change. When Fred did arouse, though there was the same vacant expression, other scenes were evidently before him, for, to the surprise of the watchers, he began to sing in a very low weak tone:

"The night is stormy and dark;
My lover is on the sea," etc.

After a few moments of seeming reflection, Alfaretta said in a whisper, "Mamma, what a funny song! I really believe Fred is crazy."

"How like! how like!" said Mr. Buell.

"But strangest of all," said Mrs. Buell, "it is getting near to a case of transposition."

For an entire week these conditions continued. The good people were worn out with watching, and would have been entirely prostrated; but there was one encouraging aspect—it was near their hearts.

During Fred's most critical moments Alfaretta seemed to almost regain her sanity; and one day this was so pronounced that Mrs. Buell clasped her in her arms, and said, "So much like my former Alfaretta!" Hopes and fears alternated; prayers ascended.

As the days wore on there were still more favorable symptoms in Fred's condition; for one morning he awoke, and, rising up on his elbow, asked, quite rationally, "Where am I?" But before his question could be answered he lapsed again into the condition of dementia.

Fred was, however, full of vitality; and when the crisis had been passed he began to mend, not only in body, but in mind. With his recovery, and the abatement of anxiety in the family, Alfaretta lost all that she had gained, to the deep sorrow of the parents.

Just as soon as a boat could be trusted upon the river, Mr. Ghering and Jose Silvera, who was an expert with the oars, came down the river to inform Mr. Buell of the catastrophe at the butte, and of the loss of Fred and Matt. But his surprise was unbounded when he found Fred alive, but, at the time of his visit, unconscious. Mr. Ghering now became a frequent visitor; and his services as nurse and watcher gave great relief to both Mr. and Mrs. Buell. After two months of confinement Fred was able to make the return trip to the Ghering ranch.

His steps led him to the scene of his operations with the bees. The river was now running quietly where his apiary had been located, and the only portion of the chalk butte that remained reared a muddy front on the far side of the river.

"You ton't know how surprist we vas when we went out that morning and found you had been vashed away. We all felt so bad, that rifer was so tearing mad, we say they drowndt sure; then we feel very bad. It vas a miracle von Profidence saft you; but I ton't understand why Profidence didn't safe Matt too. Matt Hogan vas one goot man, von splendid Christian."

"Yes, dear generous Matt," said Fred, as he wiped away his tears; "how I wish I had heeded your advice, Mr. Ghering, and slept at the ranch! Had I done so Matt would be alive to-day; but regrets never mend mistakes. As I told you, I thought the bluff the safest place; but I have now learned the destructive power of water."

The loss of his friend, of his honey, his home, and the upsetting of his plans, left Fred's mind in a dejected and morbid condition.

Mr. and Mrs. Buell discussed these symptoms, and arrived at the conclusion that, unless he was stirred to activity, he would also relapse into dementia.

"Fred," said Mr. Buell one evening, "I think

ALFARETTA WAS A CONSTANT COMPANION: MR. GHERING AT TIMES GAVE HIS AID.

it would do you a great amount of good to attend the State Fair at Sacramento. You are unhappy, and dwelling too much upon past occurrences."

"You know, Mr. Buell, I had planned to attend the fair, and had selected my honey for an exhibit; but the honey has gone, Mr. Buell—gone to Sacramento on the destructive route. I have no spirit to follow it. Mr. Ghering has a ditch to dig through his tule swamp, and I think that is about as high a sphere as I should aspire to—a clod to throw clods."

"Fred, I wish you would not talk in that strain. Know you, Fred, that you may be taken at your word, and a clod you will be. He who aspires to be only a clod will certainly reach the goal of his desires; and a person who thus makes a clod of himself should be content and never throw the odium upon a kind Providence who provides a higher and better sphere of action. Please to consider seriously my ad-

vice, for I have a commission for you to perform. I have been thinking much about Alfaretta since you were injured. We have noticed that, when she is most alert and excited, she is noticeably better. During the most critical period in your sickness we were greatly encouraged to find her so much like our former Alfaretta; but when the strain relaxed, and you recovered, she again dropped back to her old condition. We think more exercise would have a beneficial effect, and I wish you to find us a gentle riding pony for her especial use."

The idea of helping his friends, and especially of putting Alfaretta in the way of recovery, was the very strongest incentive to activity; and, while still disheartened, through duty, he mustered up enough energy to take him to Sacramento.

The change from the quietness of the rural shades for the bustle of the city, was indeed invigorating. The uproar of the city was augmented by incoming trainloads of people to attend the annual fair. The hotels were crowded to their utmost capacity, and the sporting fraternity seemed to have full possession of the city. The saloons, ordinarily plentiful, were increased for the occasion, and through them filtered the evil elements of the crowd.

Every hotel had its coterie of gamblers, and around the roulette and faro tables were little crowds intently watching the progress of the game, watcher and gamester silent, save now and then a subdued word or the continued click of the white and red counters as the game rapidly changed.

The same gaming evil was found upon the fairgrounds, but in a more extended sense. The races were on, and the sale of pool-tickets was plied with energy of voice and gesture. Flaunting women elbowed their way to the gaming-tables, and put down their coin with the men, blear-eyed and maudlin with beer. As Fred moved from point to point he felt that the entire city and fair was naught but an extensive gambling-den. There was one place, however, where no games of chance were allowed, and Fred was glad to escape from the gaming mob to the pavilion devoted to the exhibition of the peaceful fruits of industry. His interest in bee culture led him to search for an exhibit of the product of the hive. His perseverance was rewarded by finding a small but neat display. For a long time he leaned against the intervening railing, observing every feature of the exhibit. The neat sections nicely arranged seemed like old friends, and a tear came to his eye as he thought of the fate of his own beautiful honey. Regardless of the rushing throng of humanity around him, the scenes of that eventful night all came vividly to mind —the roar of the flood, the swift descent, tragic loss of his friend, his own rescue; but in all the changes of his day-dream the figure of the lovely Alfaretta was ever uppermost until he was startled to activity by the sudden dropping of a hand upon his shoulder.

HOW FAR APART SHOULD BEES BE KEPT TO INSURE PURITY?

Question.—I have a select strain of Syro-albino bees which I wish to keep pure. How far apart from other bees must they be kept in order not to have my queens meet with drones from other apiaries?

Answer.—This is a question which confronts every bee-keeper who wishes to improve his stock by a careful selection, of the best out of his own yard, and one upon which "doctors" disagree. One writer, who is considered authority on the subject of queen-rearing, says: "There are some who entertain the idea that a race of bees can not be kept pure unless they are kept isolated several miles from all other races. I have tested this matter pretty carefully during the last twenty years, and have found that one-half mile is as good as a much greater distance." He then goes on to state the length of time the queen is gone from her hive on her wedding-trip, from which I suppose he arrived at the above conclusion. He gives this as five minutes, from which I conclude that it is supposed that a queen can not fly over one mile in that time (one-half mile and return); but, as will be seen, nothing is said regarding how far a drone may fly during that five minutes. Regarding the flight of drones, he says the "drones will sometimes fly a mile or more, but queens will not;" but about how long it takes the drones to fly that mile, nothing is said. But what is to hinder those drones from being that mile from home when the queen gets to the end of her half-mile? As I see nothing to prevent, it looks as if the author would have to admit that he drew his conclusions blindly, and that he has also left a very weak point in his argument. One fact is always stronger than many theories, or any thing based upon supposition; so I will lay a fact alongside of the above, and allow the reader to form his own conclusions in the matter. Near the beginning of my bee-keeping life there were no Italian bees nearer than five miles; yet occasionally I found some of my young queens producing hybrid bees, or those which were a part yellow-banded and a part black. My original stock were all black bees when I procured them, and the Italians were introduced five miles away after I had purchased the blacks. Not long after this a man four miles away Italianized his whole apiary, and the year following I found

nearly a third of my young queens giving hybrid bees. Being pleased with the work done by the bees from these queens, which showed that they had mated with Italian drones, I soon introduced the Italians into my own apiary, which, of course, put a stop to my observations as to the distance queens will mate; but from the above facts I am positive that queens of one race will mate with drones of another race of bees unless such are kept more than five miles apart. Nature has so ordered things that the best results possible to be secured are accomplished by the instinct which she prompts, and thus the queens from one hive or bee-tree are fertilized by drones from a distance, more often than otherwise, which secures a cross which prevents too close in-and-in breeding, and gives us a race of bees capable of doing the best work. That it would seemingly be more to the questioner's interest if it were otherwise, I am well aware; but for the honey-producer, and for the perpetuation of a hardy race of bees, the Creator has ordered things aright, in this as in other matters.

ITALIAN VS. BLACK OR HYBRIDS FOR HONEY.

Question.—I wish to know whether the light-colored, or what are termed Italian bees, are as good honey-gatherers as the black or dark hybrid bee. I have heard that the first-named bees are lazy.

Answer.—I have had plenty of black and hybrid bees in my home apiary in years gone by, and still have them in my out-apiary, as they do not interfere with my queen-rearing business, as that apiary is so far away; but as the years go by I am becoming more and more convinced that the nearer wholly Italian my bees are, the better honey-gatherers they make. To illustrate: Several years ago, when the basswood bloom was all gone I did not have a single section filled with honey. After a week or so the seed crop of red clover came into bloom, and the Italians and hybrids commenced to work on it; but the blacks did almost nothing but consume their stores and carry what little honey they had in the sections into the hive below. The best Italian colonies filled their hives and stored from 30 to 60 lbs. in the sections, and the hybrids stored nearly in proportion, as they had Italian "blood" in them. Those that were apparently only a fourth Italian secured about enough to winter on, while I had to feed all the blacks, taking frames of honey from the Italian colonies to do the feeding with. Right here is where many make a mistake when they claim that hybrid bees and blacks will store more honey than the Italians, as it sometimes happens that the Italians, under poor management, fail to put as much honey in the sections as do the hybrids or blacks. Looking at the sections it would appear as if these bees were the best; but when we come to prepare the bees for winter, then we find that, while we have to feed these to fix them so they will not starve before spring, every hive having Italians has an abundance of stores, and often enough to spare to put the others in good condition as to stores also. Some think that it is best to have the brood-chamber of the hives nearly or quite empty in the fall, as the hybrid and black bees often have them, so that they can sell the honey and feed the bees for winter, appearing to think that bees will winter better on sugar syrup than they will on honey. I know that bees will winter well on sugar syrup; but so far as my experience goes during 27 years of bee-keeping life, I am convinced that they do equally well on honey. It is a job to feed a whole apiary in the fall of the year when the bees have stopped gathering honey, and one that is not to my liking, after having tried it several times from necessity. My belief is, the Italian bees are the very best in the world, taking all things into consideration.

Borodino, N. Y.

OUR bees are now in their winter quarters outdoors in double-walled and single-walled hives with winter cases. For packing we are using planer-shavings instead of chaff. The latter is lighter but not as easy to get. For actual wintering I can not see but that one does as well as the other.

THE GENERAL MANAGER, AND HIS OPINION OF THE PROPOSED CONSTITUTION.

MR. NEWMAN, General Manager of the Bee-keepers' Union, seems inclined to blockade the movement, already set on foot at Lincoln, looking toward the amalgamation of the two societies. He characterizes the proposed constitution as "so incongruous and incomplete that it seems necessary to refer it back to the next convention at Buffalo for revision." His criticisms, too late for this issue, will be given in our next. In the mean time I might say that neither the constitution committee, nor the Lincoln convention that approved it, expected that the instrument would be so perfect that it might not require some revision by the Union. At all events, I can not believe for a moment that the intelligent body of bee-keepers at Lincoln who discussed the constitution section by section would approve and indorse a documen that was both "incomplete and incongruous." The more we haggle over details, the longer we shall delay the formation of the new society. It has been delayed long enough already; and if there are "incongruous" and "incomplete" sections in the proposed constitution, let the Union patch them up. But when the objec-

tionable sections are "explained," I think very little change will be found necessary. I might say more, but will reserve further comment, when the criticisms of Mr. Newman are published in full.

A NEW UNION AND A NEW GENERAL MANAGER.

THE indications are that honey adulteration is on the increase in New York and Chicago. Glucose at 1¼ cts. per lb. is being mixed with a little pure honey, and such stuff is being palmed off in groceries as the pure article from the hive, at a price far below what the genuine can be sold for. It is such competition that is doing more to reduce the price of extracted honey than any other factor. In the face of this, bee-keepers will not take kindly to the suggestion of General Manager Newman, of the Union, that amalgamation must be delayed still *another* year, because, in his opinion, the proposed constitution of the Union is "incongruous" and "incomplete." Bee-keepers are clamoring for a new Union that will take hold of the matter of adulteration, and I should not be surprised if they would clamor for a new General Manager. I do not wish to disparage the qualifications of Mr. Newman; but, located as he is, away from the heart of the country and the center of population, he can not personally look into and grapple with adulteration in Chicago and cities of the East, where the evils are the greatest, and where, too, the largest consumption of honey — good, bad, and indifferent — takes place. The Union, until recently, had its office in Chicago; but now the General Manager is located in California. It appears to me that a Manager so situated must necessarily be as much handicapped as a general would be who would try to marshal his forces a thousand miles away from the scene of battle. The new Union will have some battles to fight, and its General Manager should be on the spot, in the thick of the fight — not thousands of miles away.

WHY THE NEW UNION SHOULD BE DISTINCTLY NATIONAL.

ONE of the reasons for proposing to make the new Bee-keepers' Union distinctly national was that we might thereby be in better position to receive financial aid from the general government. When this argument was raised, doubts were expressed as to whether Uncle Sam would ever give us any money. But Mr. York, of the *American Bee Journal*, stated that he had it pretty straight that the authorities at Washington would do something. Mr. O. O. Poppleton, who has been visiting us, and who, by the way, had given Mr. York the idea, stated to me that it was not a government *grant* but government *assistance* in solving problems that are now perplexing bee-keepers. If it should be made international, no such aid could be expected.

The North American, at its last meeting, in the proposed constitution to be submitted to the existing Union, recommended that the new organization be styled the United States Bee-keepers' Union. As such it could ask and receive material aid from the departments of the general government. For instance, a resolution from the national organization of bee-keepers requesting the Department of Agriculture to investigate the cause and cure of bee-paralysis would receive attention, and be acted upon by the department. A commission, doubtless, would be appointed, made up of the best scientists of the country, who would, at government expense, thoroughly study the disease. The report of their finding would be put in the form of a government bulletin. I am sure the few Canadians who have belonged to the North American will not begrudge the opportunity thus afforded. There are many experiments that should and can be conducted under the direction of the Department of Agriculture.

"SNOW-WHITE" SECTIONS, AND THE EFFECT OF CONTRAST.

Is it not a mistake to have "snow-white" (so-called) sections when the combs themselves, as a general rule, are darker by contrast? A darker or cream color for the wood sets off the honey much better; indeed, some bee-keepers, realizing this fact, in spite of the "fad" for snow-white sections, are demanding the cream colors; and as time goes on I am sure this demand will increase. A house painted white looks snow-white in the summer time, with a foreground of green grass; but in the *winter*, after a fresh fall of snow, that same house looks dark and dingy by *contrast*.

It is very well known that the wood of sections that have been on the hive for a time becomes discolored by—well, a sort of hive yellow that can't be scraped off or otherwise removed. Then there are the stains of propolis and travel-stains. While the propolis can be scraped off, the discoloration will remain. All of this soiling appears more glaring on a "snow-white" section than on one of a darker shade. Then, too, the honey will appear whiter in the darker wood. I grant that a genuine fancy white comb is white; but the No. 1 grade, as a rule, will be darker than the average of white sections on this market.

FRED L. CRAYCRAFT.

I AM sure the name above will sound familiar to most of our older readers who were with us when the "Juvenile" GLEANINGS was published. As a boy he was a contributor to that paper, grew up with it, and has been ever since an occasional contributor. His articles on bee-keeping in Cuba have been especially interesting. We had not heard from him recently until we happened to run across an account of a butchery that took place near the town of San Jose de las Layas, Cuba. Here is the account:

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A detachment of Spanish soldiers surprised six insurgents, who, however, made their escape, which angered the Spaniards, and they began to raid the houses in the neighborhood, alleging that the inhabitants were in sympathy with the rebels.

The Spaniards went to the sugar-estate of Frederick L. Craycraft, who came here from Indiana about three years ago. Some of the soldiers entered the house, and two of them seized Mrs. Craycraft and she was brutally treated. The husband in desperation rushed to his wife's aid, but was struck down by a sword in the hands of an officer. Two terrible gashes were made in his back, and his right arm nearly severed. The Spaniards looted the house, took $850 in cash, and then raided other houses on the estate. They burned eight buildings and shot and killed nineteen inmates, four of whom were women.

Craycraft, when he recovered sufficiently, wrote to Vice Consul Springer, at Havana. It is understood that the Vice-Consul cabled an account of the outrage to Secretary Olney.

I am sure our readers will all join with us in wishing that Secretary Olney see that full reparation is made. We shall be glad to hear from Mr. Craycraft direct. In the meantime we trust that Mrs. Craycraft was not one of the number who were slain.

LIGHT-WEIGHT SECTIONS A DETRIMENT TO THE PHILADELPHIA MARKET.

We have just had a pleasant call from Mr. W. A. Selser, of Philadelphia, the honey-man of that city. Among other things, he called attention to the fact that light weights in comb honey were a real detriment to his market. For instance, Mr. A will sell the combs by the piece; Mr. B by the pound. The former displays his honey and marks it 16 cts.; the latter displays his at 20 cts. Mr. B, as a consequence, is placed at a disadvantage. A customer approaches him and asks the price of his honey, and is met with the response, "20 cents."

"Humph!" says the customer, "I can buy it down at A's for 16 cts."

The fact of the matter is, both men sell the honey at the same price; but Mr. A's way gives the *impression* that his honey goes for 16 cts. a pound, when in reality he receives 20.

"But," said I, "why can't *Mr. B.* sell his honey by the piece?"

"He can," said Mr. S., "but here is the trouble: B's honey is put up in 1⅞ sections, and weighs about 15 ounces, while A's honey is put up in 1 ⅝ sections, and weighs about ¾ lb. The general public do not discriminate between the light weight and the heavier honey; and the consequence is, the man with the light weight has the advantage."

Dr. Miller, I know, has often called attention to this matter, saying that he believed the whole light-weight business was a species of dishonesty, or at least something to that effect.

There is another view we can take of this whole matter; namely, that sections of thinner combs are drawn out, ripened, and capped over more quickly than sections of the same weight but of greater thickness. If the whole bee-keeping world should change over to the thinner section, Mr. A would have no advantage over Mr. B. Perhaps Mr. Danzenbaker's taller and thinner sections weighing nearly a pound would solve both difficulties.

BIRDS, BEES, AND GRAPES.

In our last issue we had something to say regarding the depredations of the little bird on ripe grapes—how it made little fine pinhole punctures which had been hitherto attributed to the bees, but which are now known to have been made by a certain kind of bird with a very sharp beak. Prof. Green styled the bird a goldfinch; but the special markings of the little culprit itself do not correspond with the markings laid down in the Standard dictionary for goldfinch; and, moreover, we are familiar with the yellowbirds, and they are quite different from the grape-stabber, as we will call it for want of a better name. Well, whatever this bird is, it seems that the English sparrow comes in for a very large share of blame also. His birdship needs no introduction. In Bulletin No. 1 of the Division of Economic Ornithology and Mammology of the U. S. Department of Agriculture, I find this:

> Among fruits, grapes appear to suffer most; and, although many grapes are raised without protection in places where sparrows are considered fairly abundant, there is every reason to believe that, sooner or later, this bird will discover and injure them wherever its increase is tolerated. It has been shown that grape-buds are frequently destroyed in the early spring; and the fact that one hundred and twenty-seven observers, representing twenty-six States and the District of Columbia, now (1888) bear witness to injury to ripening fruit, may well cause apprehension among grape-growers who have not suffered any loss as yet. . . . .
>
> Those who have watched closely the movements of the sparrow when among the grapes agree that he pecks many more grapes than he eats; and his actions at such times, together with the fact that he frequently picks off leaves and shoots, which he does not eat, lend some color to the statements that he willfully destroys, simply for the pleasure of destruction.

In this locality we have not observed that the sparrow was actually puncturing the grape berries. We have noticed, however, that they were very numerous around our grapevines; and it is possible that they have been guilty of some of the mischief. I should greatly like to hear from our readers as to whether they have observed the sparrow puncturing grapes. While we are not supposed to be running a fruit-journal, we are desirous of proving that there are numerous birds, as Prof. Green stated, that puncture grapeskins, and that it is not the bee.

Counting what has been already observed regarding the bird grape-stabber, and what is already reported regarding the English sparrow, I think it is clearly proven that the little pinhole punctures and other punctures are not made by bees; and while we can not deny that they may sometimes come in and make matters worse, they are not the real cause.

One of our neighbors, Mr. George Carrington, a fruit-grower, seeing the item in our issue for Oct. 15, reported seeing just such peculiar kind

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of birds, one or two of which he had shot. His description tallies exactly with the specimen brought in by Mr. George Thompson.

Mr. C. made one good point; namely, that the pinhole punctures were invariably on the *top* side of the grape, and that the lower berries were scarcely if ever pierced. If the bees made these original holes, the puncture would appear at almost any point.

Both Mr. Carrington and Mr. Thompson said that there appeared to be but very few of these birds; and Mr. C. gave it as his opinion that this grape-puncturing trouble could be entirely remedied by using the shotgun or rifle. As there are only a few of them they can be destroyed, and the grapes will be thus left intact.

BUCKSKIN CHARLEY.

THE subject of this sketch was a picturesque and interesting personage at the Lincoln convention. Modest in his way, he had a warm hand-shake for every one. When he introduced himself as Chas. White I did not recognize in him the "Buckskin Charley" and the crack shot who had written for us in times past—see page 362 for last year. Knowing that he had an interesting history as an Indian-fighter, pioneer, hunter, and bee-keeper, I asked him to give me a few facts from his life, and here they are·

Mr. White was born in Holmes Co., O., and lived in Ohio until he was 19 years of age. At a very early age he commenced to spend much of the winter season in the forests, trapping and hunting, going to the northern part of Michigan for that purpose. He killed his first deer in Defiance, O., while a lad of only 12 years. He soon realized that that country was too tame, and consequently commenced to drift west until the fall of 1868 when he found himself in Central Nebraska, among Indians, buffalo, elk, deer, antelope, wolves, beaver, otter, wildcats, and a great variety of other game. He has hunted buffalo with the Indians, trapped with them, camped and eaten with them, and fought with and been wounded by them. He had a friend shot and killed by the Sioux while he was standing close by his side, in 1874. He has roamed over Kansas, Colorada, Dakota, and spent several seasons in the mountains. He went to Minnesota at the time of the big massacre, but, fortunately for him, the Indians had been captured a few days before. He had picked up a little knowledge of blacksmithing while in Ohio that stood him in hand after going west, as he could work in the shop in the summer and hunt in the fall and winter. The nearest shop east of him was 39 miles distant, and to the west the nearest was 75 miles. It was a government shop at Fort Kearney.

As the country became settled, he commenced staying at home, then he commenced keeping bees and soon became enthusiastic over them, reading every thing that would give him any light on the subject, until his friends called him an expert with bees. He has conducted a great many experiments in the line of bee-keeping, some of which were fairly successful. One was sending queens across the seas. Queen-breeding was one of his hobbies, and to get live queens and bees direct from Italy was one of his great troubles. He had seven queens sent from there at different times, without having one get to him alive. Thinking the fault was in the cage, he prepared one and sent a queen to Charles Bianconcini, Bologna, Italy, with instructions to change queens and reship, which was done successfully. The queen was in the cage 23 days before he released her. The one he sent was in the cage 18 days. In each shipment there were over 20 live bees with the queen on arrival, there being 40 at the starting.

Queen-rearing and the sale of bees kept his bees in poor shape for the best results in honey. Mr. White is a natural mechanic, making any thing of wood or iron that he wishes. He showed a combination section-closer and foundation-fastener at the World's Fair, called the Buckskin section-press No. 3, receiving a diploma and medal for it.

I requested Mr. White to give a particular account of what he had done with the rifle, and here is his reply in his own words:

In the winter of 1870 a friend and myself started to make a trip on the upper Republican River to get a load of deer. We followed the Platte westward, passing through Fort Kearney, going to the north of Plumb Creek, going south from there to strike the Republican River. After leaving the Platte Valley we

were overtaken by a blinding snowstorm that compelled us to pull in on the head of Plumb Creek for shelter. At the point we struck, there was plenty of timber along the stream, and very high bluffs or banks that afforded us excellent shelter. As I got on the low ground I saw deer-tracks that appeared to have been made lately; but it was hard to tell which way they had gone, on account of the snow falling so very fast. I finally determined their course, and told my partner to unhitch the team and build a fire and I would get the meat.

I followed the deer about three hundred yards, and found them feeding on turkey-berries, a fruit that grows on a small bush. There were five of them in the band. The first four I killed with four shots, having them all lying on a piece of ground not larger than a town lot. The fifth one got away about three hundred feet before I killed it with the sixth shot.

At another time I killed two buffalo with one shot—a cow and her calf. They were running by me. The calf was probably six months old, and very fine, and I wanted it and the cow; and to get them both I would have to kill them with one shot. The calf was at the cow's side, with its neck even with her heart. Throwing my gun to my face, taking quick aim at the calf's neck I fired, when they both fell dead. The calf's neck was broken, and the cow shot through the heart. I consider it the finest shot I ever made. It was nothing strange to kill two buffalo at one shot, as I have done that frequently; but the calculation I had to make, and the rapidity with which I had to handle my gun in order to catch them both at the right moment, was where it required a trained eye.

BUCKSKIN CHARLEY.

W. C. FRAZIER.

THE subject of this sketch, whose name has so long been familiar to our readers, was born in Guernsey Co., O., in 1861. He is now engaged at his home in Atlantic, Ia., in general farming, raising stock, bee-keeping, queen-breeding, etc. He is very favorably situated as to soil, and has raised this year 35 acres of corn, half of it sweet corn for canning purposes. His field corn averaged 75 bushels per acre, 70 lbs. to the bushel. He also raised this year 15 acres of small grain and about 15 of potatoes. He has 1½ acres devoted to strawberries. He keeps from 40 to 70 stands of bees, most of which are used for queen-rearing, raising from 200 to 300 queens per year. Colonies run this year for extracted honey averaged about 100 lbs. Mr. Frazier does most of his farmwork alone, and all the work in the apiary.

He has been connected with the Iowa State Fair for the last six years as assistant superintendent of sheep and poultry, and has now some of the best Shropshire sheep obtainable. Mr Frazier is also clerk of the township in which he lives, and is also director in an insurance company.

A view of some buildings sent was taken by friend F. Six years ago the land was a cow pasture. The income of the land has paid for the buildings. Mr. Frazier does not believe in keeping his eggs all in one basket, and hence is devoting his time to quite a variety of work. In a private letter he says he does not always expect to do his work alone, but does so now largely because skilled labor is so scarce.

It so happened that Mr. Frazier took the same train home that our company did. A political discussion arose among some of the passengers of the car. Mr. Frazier was an eager listener, but said little. One old fellow was berating the times, that every thing was down to starvation prices, that it was impossible for a farmer to make a living, and then ended up saying that nobody could produce corn at the present prices.

"What is that?" said Mr. Frazier.

Then our friend repeated the statement.

"Well, I want to say to you," said Mr. Frazier, "that I can produce corn at 10 cts. a bushel, and make money."

"I'll bet you have not any money in the bank."

"I am not a betting man," said Mr. Frazier, "but I have a little cash stored away in the bank for a rainy day, and I have made it off my farm too."

"Not producing corn," said his opponent.

"Yes, sir, corn helped to do it."

His opponent shook his head.

Mr. Frazier said if any one would call at his place he could prove his statement. Perhaps the above figures will explain the reason why Mr. Frazier can produce corn at 10 cts., especially when we take into consideration the fact that he does his own work. He is a stout, brawny-handed farmer, and looks as if he could do a smashing lot of work in a day; and I was told by his friends that he was just that kind of man.

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OUR HOMES.

Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh.—GEN. 2:24.

In our issue for Sept. 15 I used for a text to head Our Homes the same one I am using today; but in that talk the line of my remarks was confined almost entirely to married people and those who are more or less advanced in life. I exhorted the husband and wife, as you may remember, to be kind and gentle to one another; to be careful during that period when the children are grown up and gone away, when Satan might get in and disturb that sacred relation that should always exist between husband and wife.

I am now going to talk a little to those who are yet unmarried—not necessarily to the young people, for there are many people of middle age, some others who are well along in life, who are not united in marriage. Many people live and die without being married at all. I suppose there are, of course, circumstances wherein it is best not to marry; in fact, the apostle Paul discusses this matter, as you may remember. My convictions are, however, after having lived more than half a century, and after having made many warm and intimate friendships, both with men and women throughout our land, that men and women should live together. Not only should there be boys and girls in our schools, and both boys and girls in the classes, and men and women in our churches, in nearly all kinds of business, but, more than all this, men and women should be united and in partnership in the *home*.

Every reader of GLEANINGS—in fact, almost every person nowadays—is taking more or less interest in the progress and improvement of the human race; and I feel sure that the foundation of every permanent and solid improvement in moral and spiritual matters depends upon having men and women side by side and in close companionship. As a rule I would urge people to get married somewhere between the ages of twenty and twenty-five. There may be circumstances when it is best to wait until they are thirty years old, but I think they are rare. T. B. Terry said in one of his recent articles that he would advise young people to get married when they are twenty years old, or a little more, because at about that age both men and women begin to be settled in their convictions and opinions; and it is a harder matter for them to change after that time; and he believed (and since he has suggested it I believe he is right) that the husband and wife should begin to bend their opinions and peculiar characteristics, each one toward the other, so as to agree with each other, before they are very far along in life. I think I have seen couples who had more or less disagreement through many years of married life just because they did not get married and become intimately acquainted with each other when they were young. Every little while the boys and girls in our establishment are getting married. I am always glad to know it. The boy who gives a good deal of promise while he is young is pretty sure to fulfill that promise if he gets married while he is young. It adds stability to his character.

Now please excuse me, dear friends, for saying something that many of you may think is not just the thing to say on a printed page; but I do like to see some *children* coming into the new home in due course of time—say in three or four years. It seems to supplement and finish the work that has been well started. The husband and wife, from the very time in which they become father and mother, begin to be interested in our schools and in matters of education. They begin to read, and to attend to things they never paid much attention to before. They begin to be useful and valuable members of society. Please do not misunderstand me here. I do not mean that the young father or mother should be overburdened speedily with a larger family than they can well care for. You may tell me that these things can not be always managed, or at least be managed in a way that a Christian man and woman with the fear of God in their hearts would want to manage. I tell you you are wrong. Read the text of my last Home Paper, Oct. 15, page 759, and you will have your answer.

I have just had the pleasure of a visit of two or three days with our good friend O. O. Poppleton, of Potsdam, Dade Co., Fla. Friend P. and I are nearly of an age, and I think we pretty nearly agree in most matters pertaining to the morals and well-being of humanity. We both have children of our own. Friend P. has had a rather wider experience than my own, for he has spent two years on the island of Cuba, as you may remember. Well, in Florida—at least in many parts of it—there are more men than women. This is the case in California and many other new countries. Under such circumstances there are a good many unmarried men, and but very few unmarried women. As a matter of necessity, almost, the girls are engaged while they are still in school, and often they are married while they ought *still* to be schoolgirls. Not only are the younger ones soon married off, but there are almost no young or middle-aged women in California who are unmarried. Somebody is sure to want them; and I have a sort of opinion of my own that this "somebody" very often thanks God for them. Do you smile? My friend, if you have never thanked God for the wife he has given you, I wish you would commence right this minute doing so. After you have thanked the great Giver of all good, you may, if you chose, tell the good wife what you have done. You may tell her that her old friend A. I. Root has said it was the thing to do.

Well, down in Florida and out in California, after the schoolgirls are all married—some of them when only fifteen or sixteen years old—and after the middle-aged and elderly women are married, there are still unmarried men keeping bachelor ranches. There are not women enough to go around. What are they to do? The question has been soberly asked me a good many times. With the ample and rapid means of communication we now have between all parts of the world, one can order almost every thing he wants. If apples are five cents a bushel in one market, and a dollar in another, our railways will quickly equalize the bad state of affairs on both sides. Can our railways remedy the unequal distribution of men and women? To be sure, they can. Now, do not be troubled, dear friends of the gentler sex. I am not going to advise you to go, either singly or by the carload, where you are most needed. You would not take such advice, even if I should give it—at least, I hope you would not. What, then, shall be done? Why, these single men who need wives must go and fetch you. If they want you very bad they certainly can take the trouble to go after you in a gentlemanly and honorable way. Almost all of these people in Florida and California and elsewhere have friends back in the older and more densely settled parts of our country. Let these young and middle-aged men take a trip home. Go and

see your old mother, or visit your relations. You need not tell anybody why you came home on a visit, but you may tell the great God above. Ask him to direct you wisely (as he did the servant of Abraham when the patriarch sent him back to his kindred in Padan-aram, to get a wife for his son Isaac), and I shall have no fear about the result. Get acquainted with the women you may chance to meet or hear of. You might tell your *mother* or your *sister* that you feel it a duty to get married.

Why, I declare! come to think of it, it was a dear sister of mine who first wrote to me of a schoolgirl friend she had found. She wrote me that this friend of hers was the *best* girl she knew of in the world, and she hoped I would think just as she did. I took her advice, and I have never had reason to regret it. I shall always feel grateful to her because she used her woman's intuition and judgment, instead of permitting me to go along blunderingly, and imagine that some woman I hadn't known for a *week* was perfection itself. Then an older sister, a little later on, gave me some wise counsel that I shall always thank her for. She said in substance: "Dear brother, you two are both more than twenty years old. You will be happier, safer, and more valuable to the community *together* than you are apart; and the girl you have chosen will save money that you are now wasting in paying for board and otherwise." She was right.

Some of the brothers may say they have not the *money* to go east or north, and can not possibly scrape it up. Well, that may be true; but I think the matter may be managed even then. You are perhaps more or less acquainted with some good woman *somewhere* in the whole wide world—at least you ought to be. You are at *fault* if you are not. Get acquainted with her better, by correspondence; or correspond with the mother and sister I have mentioned, or some other friend. Now, no one need to understand from what I am telling you that *every* woman wants to get married, for it is not true. Even if you do make a mistake it is not a serious matter. No reasonably intelligent woman ever thought less of a man because he made such advances toward acquaintance, in a manly way. Write her a friendly letter; and if she replies, as she will be pretty sure to do, you can guess from the tone of her reply whether the correspondence had better be continued. I really do not *need* to suggest how the thing may be managed. If you are capable of doing business ordinarily, you can surely arrange this matter. Some of you may urge that I make the whole thing simply a business matter. I do not; but I do maintain that this thing that is called love between the sexes may be managed and controlled; and I believe that at my age I have had experience enough in that line to know whereof I speak.

Just one thought that I want to give you will cover the whole ground in regard to this matter; and God's Holy Spirit will, I believe, attest the truth of what I say. Let me put it this way: Some of you, perhaps (God grant, however, that not *very* many) may feel that you have made a mistake in choosing a partner for life. If not, may be you have at some time in your life been tempted by Satan to let such a thought come into your mind. For the sake of an illustration, let us grant, for instance, that you *have* chosen a woman unsuited to your disposition. Let us even go so far as to say that you would have been very much happier had you chosen some *other* one—some other woman with a better temper, with more physical endurance, better health, or something of that sort. May be some of you are so foolish as to say you were induced by some outward circumstances to marry the woman you did not love and *never* loved. Let us grant any or all of these conditions—what are you to do? Why, you are simply to *be a man*—a man fashioned in God's own image. You are to say to the world, to your own self, and to the great God above, "She is my *wife*. Before God and man I made a covenant to *love*, *cherish*, and *protect* her; and no matter what *comes* or what *happens* I am *going* to do it. In business matters I am in the habit of keeping all my contracts; and I am going to keep this *sacred* and *solemn* contract made before God. If I married her without loving her I am going to commence loving her *now*. If her temper is bad, with God's help I am going to make it good. If her health is poor, and she is physically weak, then we are going to use all human agencies, consistently within our power, to bring her back to health. If that can not be done, then we will make her life as pleasant and easy as it can be made. She is my *wife* just as much as and just as truly as my daughter is my *daughter*, and I propose to be father to the one and husband to the other as long as God lets me live."

If a man can do this *after* he is married (and I know of a man who *has* done it with God's help) then a man can also do it *before* marriage. If I should urge each and every one of you to pick out a woman full of virtues, and having no faults (even if such a one could be found) you could not *all* have her. The idea is not only silly, but it is unmanly—unworthy of a good man. If you are perfect yourself, then you might demand perfection in your partner for life. The women who are not the sweetest-tempered and the strongest physically must be taken care of, and you might as well do your share in caring for them as to shirk the burden on to the shoulders of somebody else. In fact, you can not be a man in God's own image if you seek for or expect the *best* of every thing in this world of ours.

So far I have said nothing in regard to *handsome* women, and this phase need hardly be mentioned. God seems to have so ordered things that the woman who is most attractive to one man is not so to another. Furthermore, the simple matter of *looks* has but little to do with it. Of course, a woman may make herself attractive, and *vice versa*, by her manners and her dress; but her behavior has very much more to do with it than either. A woman who has a Christlike spirit in her heart will always be pleasant and attractive. If she is lacking in almost every thing else this one thing may atone for it all. The good and useful women of the present age are not, as a rule, the handsome women. Almost any woman will be handsome and congenial when you get right well acquainted with her. This matter is so well known that in shops and factories, in offices, and in the business affairs of life, it has been found unwise to have two of opposite sex thrown together very much unless circumstances are such that it does no harm if they get to be friends and get married. This very fact alone, which repeats itself day after day and year after year, should convince us that love so often goes where it is sent that we may almost lay it down as a rule that almost *any* man or woman may learn to love each other if they try hard. I have watched this thing with great interest all through a long and busy life, and I am sure I am right. Sometimes where a woman is suddenly taken away, leaving quite a family, a sister is induced to take her place, first as housekeeper, then as wife and mother. Had it not been for the untimely death, the two might never have thought of such a relation

as that of husband and wife. Do not these two love each other? Why, it very often results in the happiest relations. The step-mother is, generally speaking, very much better fitted to be mother to her sister's children than any other woman.

Now, then, ye friends and brothers in Florida, California, Arizona, and anywhere else where women are scarce, do not be over-particular. If you can do so, make a pilgrimage, as I have suggested, to some place where there are more women than men, and help the world along by evening up these things. It is far better to do this than to marry little girls who ought to be in school. Use your wits. Go about in the world and get acquainted; and after you have tried contrasting the life of a married man with that of keeping a bachelor's ranch, if you feel like thanking God, and thanking a little, too, your old friend A. I. Root, write and tell him so. In fact, I have already had many thanks just in this line.

A few days ago I saw a list of statistics where it stated that men who had once been married were much more likely to be married again, than those of the same age who had never been married at all. Look about you and see if it is not true. Then, again, please consider, dear friends, whether it is right for you to have a place here in this busy world of ours without doing something to keep the world going and moving. You can not take very much interest in schools unless you have children of your own. You can not be very patriotic unless you are going to help hand down the accumulated wisdom of this present age to the coming generations. If you have proposed in your mind to live and die single, and without children of your own, you certainly can not urge other people to take you for an example and do as you do. Why, if we *all* followed you there would be scarcely a human being on the face of the earth in just a hundred years. The whole world is just now making a terrible stir because of the Armenian massacres and cruelties, and well it should make a stir, for they are cutting off by the hundreds and thousands the people who constitute a part of the population of the world. But your plan of action would result in sweeping the population off the *whole face of the earth* in just a few years. You may say, "Oh! I do not ask other people to do as I do. They can do as they please, and I will do as I please." All right, my friend. Go on in your own way; but remember you are not "in the swim," if you will pardon the expression. You are one of us, it is true; but you won't be very long.

Let me say in conclusion that this talk has been given with malice toward none and charity for all. I have given it as my opinion, from my standpoint. You can take it for what it is worth. Of course, I take it for granted that the readers of GLEANINGS are intelligent, law-abiding, pure, and virtuous men and women. I do not recommend that we should propagate crime by advising criminals to get married; that is, I would not advise them to get married until they have repented and have chosen Christ Jesus for their counselor and guide.

Under no circumstances would I recommend or encourage for a single instant this matter of *advertising* for a partner. Even if good results have come from such a course, I am sure it is not the right and manly or womanly way of doing things. Let me give you one illustration: A bee-keeper with whom we have dealt for quite a number of years, all of a sudden made a pilgrimage to Medina. He did not at first tell me why he came here; but in due time he let out little by little the state of affairs. Somebody from Medina advertised in some periodical, representing that she was a woman of means, good-looking, young, and of good reputation. Our bee friend did enter her home; but he did not stay very long. Had he known what he found out a little later, nothing in the world could have induced him to ever set foot on her premises, even for a single instant. I hardly need tell you that not one of the statements in the advertisement was true.

THE OHIO ANTI-SALOON LEAGUE.

Perhaps not all the readers of GLEANINGS are aware that there is a periodical published, entitled *The Wine and Spirit News*. It is the organ of the Ohio State Liquor League. As the readiest means of telling you what the Ohio Anti-saloon League is doing, I present some extracts from the *Wine and Spirit News:*

"We note that the Rev. Howard H. Russell never loses sight of a good thing. Either in person or by proxy he attends every church conference and Sunday-school gathering in the State, where he poses as a hero, and endeavors to hitch the Ohio Anti-saloon League on to the machinery of the church work. Beyond any question he is the most pestiferous and annoying crank the saloons of Ohio have had to deal with."

"Ever since its existence, the so-called Anti-saloon League, which claims to have members in every county in the State, and also being the strongest organization in the State, has used all kinds of means to have more prohibitory and fanatical laws passed by our assembly."

"One year from this fall we have to elect our next Assembly. If we are not completely organized by that time, and the Anti-saloon League elect their people, the same as last year, we may as well close up our business, as they again will use all means to wipe out the liquor-traffic, or otherwise make it so strong that we can exist no longer. United we stand, divided we fall."

"In every city and town in the State the Anti-saloon League is secretly forming branches, with the avowed purpose of controlling primaries and thereby securing prohibitory legislation. They have in the past dipped deeply in all the town elections, and, be it said to the shame of the disorganized saloonmen, that in some towns they have succeeded in carrying their point."

"If the Anti-saloon League isn't at present harassing you in your own town, it soon will be, as they are pushing and extending the order all over the State; and when your town is reached, let us see you in position to ask of your community your rights under our statutes, from which no honest, public-spirited citizen can recede."

"A poll of the newly selected members of the legislature was taken in regard to their position on the Haskell bill, which demonstrated that the majority of the members were in favor of the passage of said bill."

"The Legislative committee was instructed to solicit funds, and use all honorable means to defeat the passage of the Haskell bill, and seek a modification of the present laws, especially the law forbidding the sale of intoxicating liquors within two miles of an agricultural fair, and the Adair law."

"The opposition to the liquor traffic is the Anti-saloon League, which is strongly organized in every county in the State. Without any financial benefit, it has been using all kinds of means to have bills passed by the legislature which would be disastrous to our business."

Please notice the grand compliment they pay us in the expression, "without any financial benefit." You see the saloon-keepers and whisky-men can hardly comprehend how anybody, much less a great body of people, should work with such untiring zeal in any thing where they do not expect to make money by it. They are associated together for the express purpose of getting money, and they do not care a fig how they get it. If they would only knock people down in the streets, and rob them of their money, it would be a small matter comparatively; we could afford to let them go on; but in order to get hold of a few pennies and

nickels they propose to go to work in a systematic way to cultivate a taste for strong drink—see page 796. Now, because we value the souls of our boys more than we do money, they can not understand it. They have hit the truth exactly when they say, "We might as well close up our business," if we are permitted to march on as we expect to do.

The following comes from the manufacturers of the type on which GLEANINGS is printed. It was sent out as a business circular; but it makes such a tiptop little sermon that I have taken the liberty of giving it to you. It may not hit us all exactly; but I am sure, dear friends, it hits a good many of us more or less. We do not know—in fact, we absolutely can not comprehend—how much better off we are, so far as the comforts of life are concerned, than were the people who lived only forty or fifty years ago.

A PLEA FOR GOOD TIMES.

"Hard times! hard times! come again no more!"

We all sing it, we all hope it, but do we know what hard times are? We sing it while we eat beefsteak at twenty cents a pound, oysters at fifty cents a dozen, and three kinds of bread at the same meal; . . . . . we think it while we stretch our comfortable legs on Brussels carpet, before a blazing grate, with well-groomed boys and expensively clad girls around us; we shout it to our neighbors across our smooth lawns, or through our plate-glass windows; we groan it as we read our morning and evening papers, our plentiful magazines, and our costly libraries; we dream of it in our soft and springy beds, while our coal-fed furnace keeps the whole house warm; we maunder about it in our well-equipped offices, shout it through our telephones, ring the changes on it as we send telegrams and take expensive summer outings. We meet in our political, social, literary, and business conventions, and ring the changes on it while we are spending fortunes with railroads, hotels, restaurants, and places of amusement. And yet, in these days we do not know what hard times are; we think we do, but we *do not*.

The writer knows of a time within his remembrance—and he is no patriarch—when, in one of the richest parts of one of the most favored States in the Union, the whole town of some two thousand inhabitants possessed all together not over $300 in money; all exchange was by barter; there was no cash payment because there was nothing to pay with. Among the best and richest families (and there were many who thought themselves well-to-do) beefsteak was a once-a-week visitor; round beef was a luxury; oysters were an unheard-of dainty; corn bread was the usual food, wheat the rare: . . . . . cold bed-rooms, scanty wood fires, woolsey and calico were in the house; 6 x 8 window-panes were helped out by hats, old papers, and rags; a weekly paper was an extravagance, and served several families. Ten books made a good fair library; beds were slatted or corded; rag carpets were occasional, ingrain scarce, and Brussels a tradition; the sole vacation was a ride to the annual picnic in the one-horse shay; nobody had time, money, or heart for conventions or amusements. We men worked from 5 A. M. to 7 P. M. (the aristocrats shortened the time by two hours), and the women worked at all hours. And yet it is doubtful whether there was in those times such a universal spirit of unrest and discontent, such a concert of growling, as to-day. Is it fair? Are we just? Can we afford to waste time in bewailing hard times, when times are easy on us and treat us far better than we deserve?

Let us put aside these ugly tempers of ours; look toward the sun; smile at the shadow; all sunshine makes the desert; it's a pretty good world of ours. Enjoy its beauties; let us borrow no trouble; shed light on our neighbors; quit us like men, and times will seem (as they are) good.

HOUSE-FLIES.

Wife says she is sure there are more feminine readers of GLEANINGS than herself who have long been anxious to learn if you were successful in keeping the flies *entirely* out of your kitchen this summer. You remember last winter you were very sure there would be *none* (see p. 149, GLEANINGS for Feb. 15). Our plans in that line always require modifying somewhat before the summer ends, so please tell us about it soon. CHAS. CHAPMAN.

Watkins, N. Y., Oct. 27.

My good friend, there were not any flies—that is, of any account—in our kitchen last summer nor any other summer since I can remember—that is, our kitchen over home. There would not have been any at all; but the children and "papa" could not be broken of the habit of holding the screen-door open occasionally, therefore a few did get in. These were trapped with sticky fly-paper, and "spanked" with a folded newspaper until the flies decided that *that* locality was not conducive to health and enjoyment. Over here at the factory they were a good deal worse. In fact, the cook did not have a tight kitchen so as to keep them out, as we have over at our home; and, come to think of it, I believe they were a little worse during the past season than ever before.

I have just been reading with great interest a government bulletin from the Department of Agriculture. The subject is "Household Insects." Quite a part of the book is devoted to mosquitoes and house-flies; and here for the first time in my life I found out where house-flies are propagated, and how long it takes them from the laying of the egg to maturity. Let me go over it briefly. They breed in manure and filthy dooryards. The number of eggs laid by a single individual averages about 120; from the egg to hatching, a third of a day; from hatching to first molt, one day; first to second molt, one day; second molt to pupation, 3 days; pupation to adult, 5 days; total life-round, approximately, 10 days. There is thus abundance of time for the development of 12 or 13 generations every summer. The principal part of the propagation of house-flies is from stables. We may cut off the supply by using air-slacked lime on the manure to kill the larvæ. My impression is, however, this would liberate the ammonia so as to cause a loss in the fertilizing value of the manure. Let me quote from the bulletin in regard to the best method of getting rid of the fly nuisance:

A careful screening of windows and doors during the summer months, with the supplementary use of sticky fly-paper, is a method known to every one, and there seems to be little hope in the near future of much relief by doing away with the breeding-places. A single stable in which a horse is kept will supply house-flies for an extended neighborhood. People living in agricultural communities will probably never be rid of the pest; but in cities, with better methods of disposal of garbage, and with the lessening of the numbers of horses and horse-stables consequent upon electric street railways and bicycles, and probably horseless carriages, the time may come, and before very long, when window-screens may be discarded. The prompt gathering of horse manure, which may be treated with lime, or kept in a specially prepared pit, would greatly abate the fly nuisance; and city ordinances compelling horse-owners to follow some such course are desirable. Absolute cleanliness, even under existing circumstances, will always result in a diminution of the numbers of the house-fly; and, as will be pointed out in other cases in this bulletin, most household insects are less attracted to the premises of what is known as the old-fashioned housekeeper than to those of the other kind.

MAPLE-SUGAR WORMS—A MISTAKE.

On page 787 there is a report from Mr. Herman F. Moore, to the effect that maple sugar is liable to be honeycombed by worms. When I first saw this I felt almost certain it was an

error. I have been acquainted with maple sugar more or less all my life, and never saw any thing of the kind. The holes through cakes of sugar are caused by syrup leaching out. The worms that friend Moore found had got into the sugar by accident. The following, from our U. S. Entomologist, corroborates what I have said:

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF ENTOMOLOGY,
WASHINGTON, D. C.

Dear Sirs:—The insect which you send with your letter of Oct. 31, and which was sent to you by Mr. Herman F. Moore, of 6203 State Street, Chicago, Ill., is one of the common grain-worms known as *Plodia interpunctella*. This insect is ordinarily found in farinaceous material, and its occurrence in maple sugar was probably accidental. It was probably crawling away from its original food to find some good place in which to spin its cocoon.

Nov. 2. L. O. HOWARD,
Entomologist.

ON THE WHEEL.

My first wheel, as you perhaps remember, was a Columbia. My second was a Columbia; my third was a Victor flyer; the next was a Victor racer; then a Rambler. The one I have been riding for the past season is a Remington racer weighing 19 pounds. When my weight was down to 110 or 115, I found that an 18 or 20 lb. wheel did very well; but since I have regained my health, and now weigh from 132 to 135, I find a little heavier weight advisable. While I can still ride the light wheels, I do not like to risk going down one hill and up another, especially where the ground is a little rough at the bottom, as I would do with a heavier wheel. Another thing that has induced me to make a change was that I have felt rather anxious to test one of the latest make of the Columbia, made by the Pope Manufacturing Co. The result is, that now I am riding a 25-lb. Columbia; and I shall have to admit that it is the easiest-running wheel I have ever got hold of. The gear is 70*; and for climbing hills I believe I do not want any higher gear. With this I can go up or down any hill that one is likely to find on a decent wagon-load.

During the last few days I have been having rare enjoyment in riding before some of our October gales. For the greater part of the past week we have had a pretty severe wind from the south; and as there were several places I wanted to visit a few miles north of here, I took advantage of the wind. Without very much effort one can easily keep up with a pretty heavy blow. The result is, you scarcely feel any wind at all; and for the most part you are in almost a dead calm; and it seems funny to see the trees bending at each side of the road, and hear the wind whistle while you do not feel it at all. Two miles and a half north of here I passed the old farm where I spent a considerable part of my early years. The old orchard where I helped to plant the trees attracted me especially. Great quantities of apples have been going to waste in this orchard. The owner says he has been buying pigs all the while in the effort to get enough to eat up the fruit; but the apples are still ahead of the pigs. Over on the east side of the orchard were two trees that I think father and I purchased as fall pippins. Some of the fruit this season weighed 1¼ lbs. each. You see an apple could be sliced up like a watermelon, and it would do very well for a whole family. I believe that, as a rule, these monstrosities are considered coarse; but I did not find them so at all after my short wheel ride. As I had a ride of ten or twelve miles before me, I ventured on eating two pretty large-sized pippins, and it turned out just as I felt sure it would—they did not disturb my digestion at all. How I did enjoy that ride that afternoon, up hill and down, through Beebetown and Strongsville! I remember of thinking about the middle of the trip that the greatest event in the way of giving health and muscular strength to the people of this age was, without question, the advent of the wheel. Has any prominent doctor—in fact, have *all* of the doctors—contributed so much to the cause of health as the manufacturers and venders of the modern wheel? I leave you to answer the question. I am sure nothing in the whole round of amusements and recreations has come anywhere near giving mankind so much real solid wholesome enjoyment as wheeliding. There may be some evils connected with it, as with almost every other form of recreation; but it seems to me they are few and small compared with their advantages. It takes the patient into the open air. It stimulates him to use his muscles. It wakes him up and *stirs* him up. It gets him out of ruts (*sometimes* into them, of course) and out of stagnation; it is conducive to kindly feelings toward all humanity: it prompts the rider to "think no evil," but to get out of and *above* little spites and prejudices. It helps him to have faith, and to believe that he is in real truth created in God's own image. Long live the veteran establishments that have given these beautiful wheels to suffering humanity! If I am correct, the Pope Mfg. Co. are not only pioneers in this missionary work, but they have been from the start one of the largest concerns, if not *the* largest, in the world; and somehow or other I feel sure that their product is equal to any thing made anywhere.

In the vicinity of Strongsville I visited what is called the great pumping-station. This institution, with massive, beautiful modern machinery, pumps oil from almost all of the great oil-fields in Ohio. This oil is stored in a huge tank having a capacity of 28,000 barrels. From this tank it is pushed through pipes by means of powerful pumps to all the principal oil-refineries, no matter where they are located. Instead of hauling the oil from place to place on the cars they simply pump it through great pipes laid under ground. When asked if they permitted visitors to look about the premises, the clerk replied in a very good-natured manner that I could go anywhere and ask all the questions I pleased provided I did not use tobacco and would not be *scratching matches* so as to endanger their property. Now, he did not know, as the readers of GLEANINGS do, that I could be quite safely trusted so far as *that* part of it was concerned.

In order to save fuel they condense all the steam made by their great engines. This steam is condensed by a stream of cold water. The water soon becomes quite hot in performing its office, and it is therefore pumped into a sort of race exposed to the open air. The water in this race runs around the margin of a pond that covers perhaps an acre of ground. After it has had time to cool off in the open air it is taken into the works, once more to go over its office of condensing exhaust steam.

*I should mention, also, that this wheel is made with an eight-toothed rear sprocket; and I believe the general decision is that such a sprocket has much less strain, and consequently is easier, than the smaller seven-toothed sprocket.

Toward sundown I turned my wheel up to the neat little home of Mr. Mohn, who has charge of the branch experiment station of the State of Ohio, at Strongsville. They had just finished digging their field for testing the different varieties of potatoes, and we had quite an interesting time in comparing notes. Friend Mohn has been improving these beautiful October days in having their ground thoroughly underdrained. The farmers of the State of Ohio have complained several times that our experiment stations confined their experiments too much to the best kind of Ohio soil. Said the farmers: "We want you young professors to try your hand on some of the poorest clay soils of Ohio; for inasmuch as we can not all have the best soil, or even tolerable, we should like to know how to manage farms on poor land."

Friend Mohn has been trying to answer this question the past season, for his farm was selected as being some of the poorest soil naturally, to be found in the State of Ohio. He has decided that even the poorest ground should be underdrained. In fact, this stands at the bottom of all success in farming. The past wet season has put a most positive emphasis on this point.

CAN WE AFFORD TO BUY CHEMICAL MANURES AT PRESENT PRICES?

The decision is, if I am correct, this past season, as it has been before, that it does not pay to use chemical fertilizers where crops are to be sold at the ordinary market prices. If you are growing choice potatoes *for seed*, or choice grains for the same purpose, it may pay. But even then stable manure, where it can be had at any thing like the usual prices, is very much cheaper than the chemicals.

UNDERDRAINING BY MACHINERY.

The same machine that I saw at Wooster, O. (see page 751, 1893), has been in use at Strongsville at the experiment station. They have this fall been digging ditches and laying tile and filling the ditches for the small sum of 15 cents a rod; and friend Mohn says they can do it ever so much better than it can possibly be done by hand, and I think he is right about it. Just try it and see, friends, whether you can make a good ditch 30 inches deep, and lay the tiles and fill it up, for 15 cts. a rod. If you can not, several farmers had better club together and get a ditching-machine to come and do the work for them.*

Well, it was almost sundown, because I had visited long, and the wind would be right in my teeth going home. I had hoped it might abate enough so as not to be much of a hindrance on my return; but it did not seem to be inclined to abate a whit. Now, although I had come 14 miles from home almost without effort, or without conscious effort, I knew I should have a tremendous pull to get home again with that wind, even by bedtime. Half a mile away was a railway station, and a train was due in the course of fifteen or twenty minutes; so I very wisely took the train back home. By the way, it seems to me there has been some borrowing of trouble on the part of our railway companies because the wheel, as they take it, threatened to be a competitor in methods of travel. My impression is, however, that, in the long run, the railways will have *more* business because of wheels. They may have to work cheaper. In fact, the electric railways are already opening the way for lower rates of travel; but in the end *all* of these things are going to work together for good. Why, dear friends, we have a scripture text to prove it It does not exactly mention wheels and trolley cars, but it says, "All things shall work together for good to those who love the Lord."

HOME-MADE HAND-MADE BUSHEL BASKETS.

A few days ago, while I was standing in front of our store, a farmer who was passing asked, "What do you sell those bushel baskets for?" I told him they were 20 or 25 cts., according to the quality. But one of the boys corrected me by saying that there was a basket we sold for only 15 cts.

"What! an oak-stave basket for only 15 cts.? are you not mistaken, Frank?"

"No; I am sure I am not mistaken, Mr. Root, for they sell two of them for a quarter."

"*Two for a quarter!* Why, where in the world did our folks buy them so they could be sold at that price?"

After selling the man a basket I interviewed Charley, who has charge of the counter-store and he said there was a basket-maker over in Weymouth, five miles distant, who was so anxious to have something to do during these dull times that he was actually making a good stout serviceable oak basket, like the one in my hand, so that we could retail them as I have said. My curiosity was aroused, and in less than an hour I was having a pleasant chat with the basket-maker. He is a stone-cutter by trade; but business being dull, and being anxious to pay his rent, send his children to school, etc., he had figured the thing down to these exceedingly low prices rather than do nothing. His shop was a little room perhaps 15 x 20 feet, in an upper part of his little home. I am going to try to tell the readers of GLEANINGS how he makes baskets. Let me give you a picture of the basket first.

Not very many tools are needed. What he has are, I believe, all home-made, or made with the help of the blacksmith near by. First we want a form for the basket so as to have it hold an exact bushel. This form is made of wood covered with heavy bands of iron wherever nails are driven. These heavy iron hoops are to clinch the points of the nails as they strike them. The form stands up about three feet above the floor, in the middle of the room. The form is just the shape of a bushel basket bottom up. In the center, where the bottom of the basket comes, a steel rod runs up two or three inches. A thread is cut on the rod, and a steel burr runs up and down on it. The first thing is to make the bottom of the basket. This is composed of two wooden wheels 9 inches across and ⅜ thick. He makes them of ⅜-inch basswood which he gets at our factory. Colored and knotty boards will answer for baskets as well as any. The two wooden wheels are

*The address of the manufacturer of these ditchers is J. B. Hill, Bowling Green, Wood Co., O.

nailed together so as to have the grain cross, to prevent splitting. But before the wheels are thus nailed, the basket splints must be put in place. These wheels have a half-inch hole through the center. This hole permits them to slip over the steel rod or standard that sticks up out of the form. Then the nut or burr is screwed down so as to hold them at just such a distance apart, while the ends of the splints forming the basket are pushed between the board wheels.

Before we go any further, however, we must provide ourselves with splints. These splints are made of red oak. I notice by the basket which I have in my hand that the splints are about 3 inches wide—may be a little less. The thickness of each stave is only a plump $\frac{1}{16}$ inch. In each basket there are about 30 staves, and these staves must be gotten out some way without much expense. My good friend Roberts goes to the woods and cuts down a suitable large red-oak tree. With a crosscut saw he cuts it up into lengths of about 3 feet; and after he gets home these lengths are once more cut in two, making 18-inch blocks for staves. These blocks are then split up with a frow (such as people used for making shingles years ago), so that we shall have planks split out about 3 inches thick, the width of the staves, said pieces of plank being 18 inches long.

Now, the staves of our basket must be tapering; in fact, each one must be tapered pretty nearly to a point where it comes between the wheels that make the bottom of the basket; therefore these 3-inch planks must be tapered so as to look like a very wide wooden wedge. He tapers them with a drawknife, similar to what coopers use. It takes a good deal of hard work to do this tapering by hand; but he says he can taper a good many while he would be carrying a load to some wood-working factory to have it done by appropriate machinery.

After he has got out a lot of these huge wooden wedges they are deposited in his wife's wash-boiler, and boiled on the cook-stove. They require boiling about an hour to make the wood soft enough so he can shave it up into staves. After boiling, the wedge-shaped block is screwed into a vise, and then he takes a home-made drawknife or splitting-gauge set so as to take off a shaving a little more than $\frac{1}{16}$ inch thick. With his stout muscular arms our friend will slice off staves or big shavings, you might call them, about as fast as one can pick them up. It made me think of the cooper shavings we schoolboys used to carry home from the cooper-shop across the road from the school-house, in olden time. Now, although these looked like the old-fashioned cooper shavings, they are all of an exact size, length, and thickness. From their shape they made me think of great big cucumber seeds.

You will remember we left the wheel standing on the form in the middle of the room. Now our friend picks up the big cucumber seeds and sticks them point first in between the two wooden wheels forming the bottom. When he gets clear around we find it takes just 15 to reach; then he slides in 15 more on top of the first lot so as to break joints. The whole thing now looks like a mammoth ox-eye daisy with its white petals sticking out like the rays of a star from a white basswood wheel. The nut on that central steel rod is now pressed down so as to hold every thing solid. A big washer is placed under the nut so that said nut shall not sink into the soft basswood.

We are now ready to nail the bottom fast to the splints. The right sort of wire nails are driven down through the staves, and clinched against the heavy iron form underneath the bottom. If the oak were dry and seasoned, it might be hard to get the nails through; but you remember they have just been steamed, and the action of the dampness in the wood on the nails soon rusts them so tight and solid they can never budge. This wooden bottom holds the splints up from the floor so that they do not get worn through by sliding the basket around.

After the bottom is nailed fast, a big stout hoop like that used by coopers is laid on top of the projecting staves and crowded down. This makes our big star into the form of a basket, in a twinkling. A hoop made something like an ordinary barrel hoop is now placed on the staves about half way between the top and bottom of the basket, and nailed to every stave. A similar but lighter hoop is placed inside, and the nails go through both hoops and the staves between them. In the same way a pair of heavier hoops are put around the top edge of the staves, one hoop inside and one outside. When these are done the basket is all finished except the handles. These are made of steamed oak or other suitable wood, being notched in with a sharp knife where they strike the upper hoop, and are then stapled fast to the upper edge of the basket, with appropriate iron staples. These staples are driven through and clinched.

The basket is now ready to be handed over to the farmer, for corn, potatoes, or any other crops. It is pretty close business making such a basket, and furnishing material, so that it can be retailed for 12½ cents, is it not, friends? Friend Roberts told me he used to get $2.50 a dozen for these baskets. They were then retailed for 25 cts. apiece. For several years the price has been gradually coming down. You see he is obliged to compete with inferior work—the gift baskets that are not expected to much more than hang together until you get home with your produce. He not only works all day, but he saws out the wheels for the bottoms evenings, by lamplight, makes the handles, and does other nightwork.

The hoops are made by taking a log to the sawmill, and having it sawed into 3-inch planks. Then with a buzz-saw they rip off strips from this plank, about $\frac{1}{16}$ inch thick, or less. The logs are cut of such length as to make an even number of hoops, without waste; then friend Roberts splits up the long thin lath with a splitting-gauge, so as to make different-width pieces. The lower hoop is $\frac{1}{16}$ inch wide, the upper one a plump inch.;

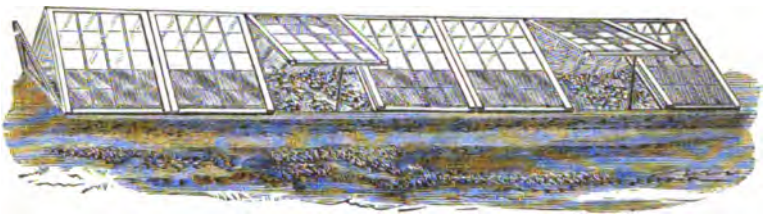
Now, friends, here is a valuable object-lesson in the little story I have been telling you. Rather than be out of work and do nothing at all, our good friend has decided to work thus cheaply; in fact, he told me the only outlet for him to pay his rent and educate his children, keeping them decently clothed, was to make baskets at this low price. Are you doing as much in your own home and neighborhood to help things along? You see he is not only helping himself, but he is giving the farmers, who are obliged to sell their crops so cheaply, a good serviceable oak basket at a price correspondingly low compared with what they get for the stuff they sell. Sometimes it seems hard, I know, to be obliged to work hard and get only small pay at that; but when we come right down to business, and decide to make the best of every thing just as we find it in this world of ours, we are pretty sure to find a good deal to be thankful for after all.

After visiting the basket-maker I made a call on Mr. Job Green, the Medina Co. nurseryman. When I came near the place I judged the family were busy cleaning house, for the lounges, easy-chairs, and other furniture stood

out on the lawn in front of the dooryard. Under the circumstances I excused myself from going in; and after looking over the thrifty young fruit-trees and discussing fruit and kindred industries, I prepared to go on—stopping long enough, of course, to sit down on one of the lounges and sample some of the apples we had been talking about. Mrs. Green soon came out with a very pretty grandchild in her arms; and just as I started to go away she informed me that they had decided to clean house, even if it *was* election day, because they would be pretty sure of having no *visitors*. This was said just as I started off. By the way, let me remark that other people have found out what a beautiful fruit that sloe plum is that I have been telling you about. Friend Green said that, a few years ago, they budded quite a lot of them, but there was not very much call for them, and their stock ran down. This year, however, there has been quite a demand for it. They are not only almost the handsomest fruit that one can have in his dooryard, but they are luscious to eat raw—that is, where one loves the taste of the wild plums as I do; and there is no nicer plum in the world for sauce and canning. I can not find that any nurseryman advertises them; but friend Green promises to procure some for me, if they can be had. One reason why I always enjoy a visit to this nursery is that our veteran friend not only loves fruit and fruit-trees, but he loves, more than all, *the kingdom of God and his righteousness*.

I had planned to visit the Atwood celery-farm; but as the wind was blowing strongly in the direction of my home, and it was near night, I decided to go home on the cars. When I reached Fairlawn station it was just an hour till train-time. The celery-farm was two miles and a half away. Counting a mile for every five minutes on the wheel, and five minutes more for little hindrances, my visit to the celery-ground could not occupy more than 25 minutes. I sprang on to my wheel, and was just making things fly, having covered about half the distance, when my eye caught sight of a cluster of glass-covered frames, and then another long frame newly made covered with beautiful white and glistening glass sashes. The rays of the declining sun made them glisten. It was a surprise to me, because I was somewhat acquainted in that vicinity. Said I to myself, "Why, how does it come that somebody is enterprising enough to invest in sashes and gardening implements at just this time when every thing is so low, and so many people are lamenting about the "hard times" (see page 833)? Instead of going ahead I turned my wheel abruptly and rode up the lane, where an exceedingly tall slim young man was watering plants with a hose and sprinkler. I then remembered that this was the residence of Mr. Miller, whom I have before mentioned as a progressive market-gardener. Friend M. is getting pretty well along in years, and he has turned over the gardening business to his stalwart boys. Now, even if his three boys *are* young giants in stature, they are nice-looking boys, and good ones.

As I sprang from my wheel my eyes were delighted with a group of the prettiest cold-frames filled with plants that it was ever my fortune to behold. It is only once in a great while that I see any thing in the way of plant-growing that just meets my ideal. We had it here to a dot. There was no new invention about it particularly; but it was a well-made cold-frame on principles which most of us know all about.



A COLD-FRAME FOR WINTERING OVER CABBAGE, CAULIFLOWER, LETTUCE, ETC.

The picture above shows just about how the frame or pit was made, except that the sashes were more nearly level. In fact, the ridge-pole was not more than 10 or 12 inches above the outside; and there was, of course, no gable end to speak of. The special feature of these cold-frames — there were four of them — was that the whole outside was made of good hard brick laid in cement. The surface of the bed where the plants stood was about a foot below the level of the ground; and the earth thrown out was banked up around perhaps another foot above the surface. This made the walls 2 feet deep—that is, it was about 2 feet from the eaves to the surface of the soil where the plants stood.

Now, I have a great many times been disgusted with wooden stakes and wooden plank for cold-frames and plant-beds. With the heavy watering that is necessary to get the best results from plants, in connection with the high temperature needed to have them grow well, any kind of wood will soon rot and become unsightly, and be giving way. This brick and cement would last, I suppose, a lifetime. Then there is another advantage that I have been thinking of for some years past—a *sunken* bed is much better for plants than one level with the ground, or raised up above the ground-level. It is better in the summer when the plants are likely to dry up and be scorched by the intense heat of the sun; and it is ever so much better in winter time, because it is a far easier matter to give ample protection from frost—especially around the outside edges of the bed, providing *always* that you have *perfect drainage*. The Miller brothers have their sashes to slide on the rafters; and when they are pulled back, the lower end of the sash rests on a bar of wood fastened to stakes just a little above the surface of the ground. They make it a rule to uncover their cold-frame cabbage-plants whenever the weather is above the freezing-point. When every thing is frozen up solid, the sashes are kept closed and not disturbed at all. With the neat well-fitting and perfectly tight sashes and rafters, I should not be surprised if it were rare to find the surface of the ground frozen where these cabbage-plants stand. When I saw them, each plant had leaves about as large as a fifty-cent piece. The leaves were dark green, clean and thrifty. The plants were put in by a spacing-board such as we use, at exact distances, and there was hardly a miss or break in the whole four

frames. The cold-frame in the picture is covered by 28 sashes. This would make a bed inside about 11 feet wide by 25 feet long. Those used by the Miller brothers are perhaps a little wider because the sash is laid down so much flatter; and the length of each frame was perhaps 20 feet. The four frames together hold about 28,000 cabbage-plants. Said I:

"Why, friend Miller, is it possible that you people make use in your own market-garden of all these plants?"

"Pretty nearly all of them, Mr. Root."

"And you are fully satisfied, then, that cold-frame cabbage-plants are enough better than those grown under glass in the spring, to pay for all this expense of beds and sashes over winter, are you?"

"Yes, we are fully satisfied Our very early cabbage grown from cold-frame plants always bring us good prices. A little later, when prices go down, there is not much money in it."

I did not wonder so much when I realized that, with these extra nice beds, they would have a lot of cabbage-plants that are far ahead of those ordinarily found. He said further:

"Oh! if folks insist on having them, we let them go at 10 cents per dozen; but we do not care to let them go any cheaper, for they are worth that to us."

Please note here one feature of the cold-frame I have described. The glass in the sashes is 2 or 2½ feet above the plants. This gives a better protection from frost, and it is all right for cold-frame cabbage-plants, because we do not want them to grow, but just to stand still through the winter.

Great quantities of Grand Rapids lettuce-plants are wintered over in the same way; but for the lettuce-plants a much cheaper bed with board sides answers. In fact, the great long bed that I saw from my wheel had nothing but 12-inch barn-boards for the sides. The bed was 125 feet long, if I am correct, and it was built very much like the one shown in the cut. I was surprised again that they should invest so heavily in lettuce-plants, but was informed that they were entirely for their own use, and that the demand for Grand Rapids lettuce is increasing so rapidly that they had never yet had enough good plants. In connection with all these cold-frames they have a small greenhouse warmed by flues. A windmill pumps the water, and stores it in a little tank adjoining the greenhouse.

I wanted to stay longer, but it was only 15 minutes to train-time, and I was a mile and a half from the depot: but where one is really hungering and *thirsting* for information, how much he can learn in just 25 minutes—that is, when he gets among progressive people! Now, friends, how many of you would think you could afford a cold-frame walled round with hard bricks and cement? And the question comes in here: How long do you expect to continue in the gardening business? Are you going to switch off and try something else as soon as there are great crops and every thing is down low? If so, you can not afford to build a cold-frame like the one I have described to you. Gardeners have had a hard time getting any thing like cost for a great part of their stuff in our locality this past season; but these boys are pushing ahead, making nice and perfect arrangements for their work, just as if they knew nothing about hard times at all, and they will *surely* get their reward. This lack of enthusiasm, and getting tired of your own legitimate business, is, in my opinion, the greatest hindrance to successful bee-keeping, successful gardening, or successful farming, that meets us as a people. It is worse than drouth and flood, grasshoppers, blight, or even a scarcity of money. The man who keeps right on in his own line of business year after year, keeping posted in regard to all improvements and short cuts, is he who is going to win.

Just now, this 6th day of November, people are wanting Grand Rapids lettuce. In fact, one lady begged us to let her have some leaves from some stalks that had gone to seed, for we had not a plant large enough to cut. Celery is also bringing good prices, as it has been doing for years past. Hubbard squashes are becoming scarce, and the market price is running up. Now, shake off this lethargy. Go to work during these bright cool days; fix up your greenhouses and cold-frames, and make things permanent and substantial. It does not pay to invest time and money in a crop, and then lose it by some unusually severe storm and freeze, just because your greenhouse and frames were so rickety your stuff did not have adequate protection. I told you last season about putting building-paper over the board sides of our cold-frames, and covering the paper with common shingles, letting the shingles run up and down. Beds thus fixed have suffered but very little from severe freezes, especially from having the plants killed around next to the outside of the bed.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

The government bulletin alluded to on page 833, "Household Insects," can be had by sending 10 cts. for Bulletin No. 4, New Series, U. S. Department of Agriculture, Division of Entomology, Washington.

A BARGAIN.

We have made arrangements to furnish the *Ohio Farmer* and GLEANINGS for only $1.50. The *Ohio Farmer* is well known as one of the very best, largest, and among the leading agricultural papers of America. A 20-page, 80-column paper every week in the year; employs the very best writers that money can procure; a strong, fearless defender of the agricultural interests of this country, and clean in both reading and advertising columns. It helps make the farm pay.

SEED POTATOES, NOVEMBER 15.

On page 802 of our last issue I spoke of having sold practically all of our No. 1 Thoroughbred potatoes. In arranging some of the details of the sale, however, we could not exactly agree, and so the sale was not made: therefore our Thoroughbreds, first quality, will remain as in the table below:

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White Bliss Triumph	$ 15	$ 35	$ 20	$ 35	$ 60	$ 1 00	$ 2 50
E. Thoro'bred, Maule's	50	75	60	1 00	1 75	3 00	7 00
Early Ohio	15	35		25	40	75	2 00
Early Norther	12			20	35	60	1 50
Burpee's Extra Early	15	35		25	40	75	2 00
Freeman	15	35		25	40	75	2 00
New Queen				20	30	50	1 25
Monroe Seedling	12			20	30	50	1 25
Rural New-Yorker No. 2	12			20	30	50	1 25
Sir William	15	35		25	40	75	2 00
Carman No. 1	12			20	35	60	1 50
Carman No. 3	15	35	20	35	60	1 00	2 50
Koshkonong	15	35		25	40	75	2 00
Manum's Enormous	15	35	20	35	60	1 00	2 50
New Craig	15	35	20	35	60	1 00	2 50

We guarantee against damage by frost all potatoes ordered and shipped during this month of November.

THOROUGHBREDS FOR PREMIUMS.

Remember, 1 lb. of Thoroughbreds will be given for every subscription to GLEANINGS provided you do not ask for any other premium; and this will apply to paying up old dues or subscribing for the future—that is, a pound of Thoroughbreds for every dollar sent. But you must pay 9 cts. for postage

and packing; and to every present subscriber who sends us a dollar with a new name, that is, for introducing GLEANINGS into a new family or neighborhood, we will allow him a peck of Thoroughbreds worth $1.00, or ½ bushel of *seconds*, worth $1.00.

OTHER POTATOES AS PREMIUMS.

You can select any other kind of potatoes from the table, reckoning 25 cents' worth of potatoes for every dollar sent us for GLEANINGS, or 50 cents' worth of potatoes for every dollar sent for a new subscriber, as explained above.

EARLY THOROUGHBREDS FOR THE FLORIDA FRIENDS.

We have yet several barrels of Thoroughbreds that were grown in North Carolina, reaching us in July. These were grown extra early in order to be planted for a second crop. They are now sprouting to such an extent that I fear they may not keep well until spring. On account of this we offer them at the extremely low price of $1.00 a bushel or $2.50 a barrel. Our firsts, as you will notice by the table, are $7.00 a barrel. It is just now time to be planting potatoes for the winter markets in Florida. In fact, we have shipped a good many barrels to Florida for this very purpose already. Now, these Thoroughbreds I have mentioned can be utilized by the *Florida* friends but by nobody else. We have secured a low rate of transportation for any point along the Florida coast, shipping by way of New York city. Now is your time if you live so far south that the potatoes can be planted at once. We have had so much experience in packing, that for orders received during this month we will guarantee against damage by frost.

Wants and Exchange Department.

WANTED.—To buy a car lot of fancy and No. 1 white comb honey, at prices to suit the times.
B. WALKER, Evart, Mich.

WANTED.—To exchange the best apiary and supply business in New Mexico; also a 26-acre fruit farm, 6-room house, and out buildings, near agricultural college and public school, for city property in the east, or offers.
MCCLURE BROTHERS, New Concord, O.

WANTED.—To exchange 200 colonies of bees for any thing useful on plantation.
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange thoroughbred poultry, seven leading varieties, for bee-supplies or offers. A. H. DUFF, Larned, Kansas.

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To exchange all kinds of machinery (iron) for a saw-mill, and wood-working machinery. W. S. AMMON, Reading, Pa.

WANTED.—The address of any one having ferrets or wild geese to sell.
CHAS. MCCLAVE, New London, Ohio.

WANTED.—To exchange Pekin ducks, Antwerp pigeons, P. Rock fowls, for Wilson bone-mill.
W. E. FLOWER, Ashbourne, Mont. Co., Pa.

WANTED.—To exchange a pocket camera for beeswax; cost $3.75. A. I. ROOT CO., Medina, O.

SIX Varieties of Seed Potatoes, by mail or freight, at bottom prices.
G. M. WHITFORD, Arlington, Neb.

FOR SALE.—15 boxes fine heartsease extracted honey. Price per lb., 6c. Also 14 boxes last season's honey at 5c a lb. Boxes have two 60-lb. cans each.
eitf JNO. A. THORNTON, Lima, Ill.

REGARDING YELLOWZONES.

The hearty reception given by GLEANINGS readers to these effective little tablets is surprising, and their proprietor takes real pleasure in referring to it here. It was farthest from my intention, when bringing the remedy to its present state of perfection, to ever place it upon the market. I was simply working in the interest of my own patients. But its use in a large variety of diseases, and under the most varied circumstances, was almost invariably attended by the same splendid results; and the fact was forced upon me that I had a remedy of unusual merit. My patrons evidently formed the same opinion, for repeated calls came for "some of those yellow tablets; same as you gave —— when he was sick." Finally arrangement was made for the advertising of Yellowzones in GLEANINGS; and the first medical advertisement that ever occupied space in these columns appeared the 1st of last March. From that time the GLEANINGS family have made a steady demand for the remedy; and, though every box has been guaranteed to give satisfaction or money returned, not one customer has ever asked for the return of his money, or made complaint. On the contrary, customers send repeated orders, and with such kindly words of praise and thankfulness that it is evident Yellowzones are doing as good work among you all as here in my own field of practice.

Notice the column of testimonials, June 15, p. 479.
No attempt is being made to do a big business.
Yellowzones are advertised in no other paper.
My personal attention is given to every order.
You will find them especially serviceable in all fevers, headache, colds, grip, rheumatism, neuralgia, etc. Particularly useful at this time of year. An honest efficient remedy for general household use. I will appreciate your custom. Price 25 cts. per box; 6 boxes, $1.00. Most orders are for dollar lots. Glad to send you a circular.

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To every new subscriber who sends us $1.00 we will send him our journal, Gleanings in Bee Culture, one year, and the book by A. I. Root, containing 190 pages, the size of this, entitled What to Do, and How to be Happy while Doing it, postpaid. The regular price of this work is 50 cents. If you prefer, the journal may be sent to a friend, and you can keep the book for yourself.

THE A. I. ROOT CO.,
Medina, O.

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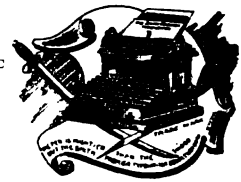

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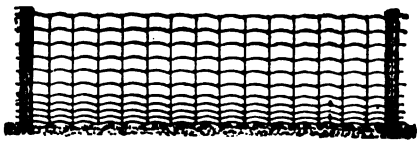

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PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

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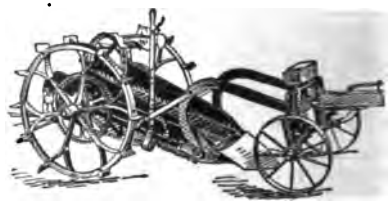

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THE A. I. ROOT CO., Medina, O.

VOL. XXIV. DECEMBER 1, 1896. NO. 23.

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Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - - Medina, Ohio.

A. I. ROOT, Editor of the Home and Gardening Departments.
E. R. ROOT, Editor of the Apicultural Departments.
J. T. CALVERT, Business Manager.

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We will send GLEANINGS with—

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

Vol. XXIV. DEC. 1, 1896. No. 23.

STRAY STRAWS FROM DR. C. C. MILLER.

A CHINAMAN seems to be setting type on GLEANINGS. Page 834 he has "wagon-load" for "wagon-road." Chinaman make velly good plinter.

I'M RATHER INCLINED to favor light-weight sections, providing they're made so light that by no possibility can a dishonest grocer sell one of them for a pound.

YOU OBJECTED, Mr. Editor, to my trying only one colony of bees out of doors last winter. This winter I'm trying ten packed the same way. Will that suit you better? [That is better, doctor.—ED.]

MY PUNICS (half-bloods) did a good deal better than reported at Lincoln, for at that time No. 2 had a lot of honey that I didn't know of. I think 300 lbs. is below the mark, besides abundance for winter.

I WAS LATE getting some of my lighter colonies filled up for winter; and after I used up all sealed combs of honey I gave the rest sections. Extravagant, perhaps, but I didn't want to risk feeding syrup in November.

APIS DORSATA, shall government import them? is asked in *American Bee Journal*. Repliers are more than three to one against it. Rev. M. Mahin says, "If they are capable of domestication the people of India would have domesticated them long ago."

READING PAGE 130 makes one feel rather sad to think that by any possibility could there be any need to advise the securing of a good wife or husband. Something wrong when young people think they can't afford to marry. They can't afford to remain single.

I'VE ALWAYS WANTED to have our central organization include Canada as well as United States, although strangely enough some accused me of wanting to drive out Canadians. But if more can be accomplished by having the organization national I give up. Just now the most important thing seems to be to make a lively chase after adulterators and swindlers.

A REPORT in *American Bee Journal* sounds like old times. L. R. Lighton averaged 120 lbs. extracted honey from each of his 15 colonies, and sold at 20 cts. a pound. That makes $24 per colony, or $360 for the 15. He keeps bees mainly for recreation. Wonder what he'd report if he kept them for profit.

HON. R. L. TAYLOR might well take up the question, "How long from the laying of the egg to the perfect queen?" It's hardly safe to average 17 with 15 days, for the 17 was an error of 35 years ago that I think no one holds now. The error probably arose from considering the work of weak nuclei, and the right thing, no doubt, is the development of a queen normally in a full colony.

NOW I'M MAD. You say, Mr. Editor, p. 820, that I have no credit for originality as to wood splints in foundation. If you ever want me to speak to you again, just change that "originality" to "priority," unless you can show the place I copied from. But friend Averill beats me in getting the bees to respect unwaxed sticks. [I beg pardon. I will change it to "priority" in all the journals I have sent out. That is *easily* done.—ED.]

WHAT'S THE GOOD of unloading the hives from friend Mendleson's wagons, on p. 817?—might just let the apiary stand on the wagon till time to move again, as photographers do with their wagons—not exactly a floating apiary, but a flitting apiary. [Yes, a wagon could be arranged so as not to make it necessary to unload the bees at all; but one large enough to take a whole apiary like friend Mendleson's would make it a little difficult to get at the lower tier of hives for putting in the boxes.—ED.]

R. WILKIN writes he has fed 3½ tons of sugar and 1 ton of honey this fall by pouring in at entrance, and likes the plan. For each pound of sugar he uses half a pound of water. He says too hot or too thick syrup will kill bees. I fed it thick. Likely that's why it killed them. He

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pours syrup in through curved, flat-ended funnel, feeding 500 pounds in two hours, giving each colony 5 to 15 pounds each evening. [I should hardly like to feed 3½ tons of sugar and one ton of honey on the bottom-boards of the hives of an ordinary apiary. Too many of them, I fear, would leak, and make this method of feeding rather expensive.—Ed.]

I don't know whether there was any design in putting so close together those two items on page 833, but I couldn't help thinking if some of those who sigh for the "good old times" were to spend just one week in hot weather without fly-screens, as in the "good old times," they'd be glad to get back to the present. Our arms don't get tired now keeping a fly-brush going all the meal-time to keep the flies off the table.

Perhaps it might not be safe to put 15 ounces as the approximate weight of 1⅞ sections (page 811). Next year the weight may be nearer 13, and I think some have reported 13 as the average weight. [Let us see, doctor: I believe you said you preferred 1⅞ sections because they averaged a pound; that is, a crate of 24 such sections would have a net weight of 24 lbs. If this is true, the 1⅞-inch would average very near 15 ounces; but is it true that there is so great a difference in different years? Let's have an expression from our readers.—Ed.]

What a business—yes, what a science—advertising has become. I went with friend York to a banquet given by an advertising agency, the Frank B. White Co., to advertisers and publishers for mutual consultation. I was glad to see a grand supper could be given without wine; but A. I. Root wouldn't have liked so much cigar smoke. [Yes, indeed, advertising, in this country at least, has come to be a real science. The advertiser who knows how and when to cast his bread upon the waters is pretty sure to get it back again many fold. The purpose of these conventions is to learn both the *how* and *when*. I presume we as a bee-keeping firm spend thousands of dollars more in advertising than any other concern engaged in the manufacture of bee-keepers' supplies; and our position as manufacturers is due largely to our faith in advertising; advertising first, last, and all the time. "Keeping everlastingly at it" is one of the accepted mottoes among advertisers who get their money back.—Ed.]

Say, Mr. Editor, don't let's get into a quarrel through a misunderstanding. On p. 812 you reply that you've seen queen-cells right over eggs, and you think the colony had been queenless some time before the eggs were given. That doesn't conflict in the least with my statement, "Unqueen a colony and the bees will start a queen from a larva, never from an egg." Did you ever know a queen to be started from an egg on the removal of a queen, assuming that the removed queen left larvæ and eggs? [No, I never knew a queen to be started from an egg on the removal of the queen, *provided* there were *larvæ* as well as eggs in the comb. But your statement, it seemed to me (and does so yet) is a little strong when you say that the bees will *never* start a queen from an egg. The sentence in question contains no proviso to the effect that there may be larvæ or eggs. Some years ago, when I was rearing queens, those that sold for a dollar, it sometimes became necessary, under pressure of orders, to remove a queen after she had laid a few eggs. Well, under such circumstances, if I am not mistaken, I have seen the bees, in their eager haste, start cells right over the eggs. They just could *not* wait for them to hatch into larvæ.—Ed.]

POISONOUS HONEY.

DR. STELL'S CONCLUSIONS DISSECTED.

By E. S. Arwine.

Anent the poison-honey question referred to in the Oct. 15th issue, page 757, where you reproduce Dr. Stell's article in *Southland Queen*, which gives the usual symptoms of laurel poisoning, but which has no bearing on the theory of the secretion of poisonous honey by the laurel flowers, I would say: The leaves of mountain laurel (*Kalmia latifolia*) are well known to be poisonous to man, sheep, and some other animals, but are not poisonous to deer, goats, quail, etc. Why this is so I am unable to state, neither have I ever heard a reason given. May it not be that laurel is poisonous to gall-secreting animals, while non gall-secreting ones may eat it with impunity? Deer have no gall-producing glands in their liver. I have never examined a goat's liver. If Dr. Stell had used nux vomica instead of laurel leaves, he would have had strychnine instead of laurel poisoning, and would have proven as much; that is, honey can be poisoned; but the secretion of poisonous honey is a different thing. I think his poisoned honey would have killed bees had he confined them to it.

Poison in the honey-sac of bees (unless very concentrated) would not affect them in the short time required to load up, carry to, and deposit in the hive, as very little if any absorption takes place through the walls of their honey-sacs. As Dr. Stell used a tincture of the leaves, and not honey from the laurel flowers, his experiment proves nothing as to the secretion of poisonous honey.

There are but two avenues open to us to reach a conclusion in this question; namely, analogical reasoning and actual experience. Analogy

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will carry us into the physiology (or, rather, botanology, if you will allow me to coin a word) of plant life. In this line we find various organs performing the functions necessary to growth, maintenance, and reproduction of plant life. The absorbing cells gather material from earth and air, and discharge it into the fluid circulating in the interstices of the plant, and is carried by the vital forces to every part of the plant, each organ selecting from this fluid such part of it as it can use in fulfilling its functions. This fluid is apparently limpid, yet in most plants it contains a minute portion of coloring-matter, probably dissolved from the plant tissues. Some of this coloring-material is separated with the honey in some plants, and in others is either entirely absent or is not carried off by the nectaries; therefore we find some red, pink, purple, and other-colored flowers furnish a water-white honey, and some white flowers produce an amber honey. This coloring-matter, not being volatile, deepens as the honey ripens; hence the various shades of honey. Sometimes these shades vary in different years, and at different periods of the same year, in the same species of plants, depending, probably, upon meteorological conditions. But the colors of flowers are probably always produced by the action of the cells in their petals, assisted by the action of light; hence nature produces variegated and solid-colored flowers. Is it not probable—yea, almost certain—that the poison in most poisonous plants is produced by the gland-cells in the parts where found, these cells taking atom by atom, and building therefrom poison molecules which remain in the tissues where produced? If this theory is correct, then flowers probably never secrete poison; for to do so they would have to possess poison-producing glands. The rattler secretes poison only at the base of the fangs; but if the poison in poisonous plants is produced in their general structure, and circulates with the circulating fluid, then some of that poison might be separated with the nectar. This I have never verified; but the poisonous spores in the poison oak are in the juice of the plant, both in leaves, bark, and wood; nevertheless, bees gather pollen and a reddish pleasant healthful honey (sometimes quite abundantly) from the greenish flowers of that shrub. These spores of the poison oak attack the skin of many people, causing erysipelatous inflammation, which frequently extends to the subcutaneous areolar tissue, while other persons have complete immunity, even though they handle the broken plant with abrasions and sores on the hands.

From this observation I am inclined to the opinion that the nectaries never separate the poison of plants with the honey they produce; therefore we are inclined to think that the few cases reported from the South, of poisoning, believed to be from the honey of the yellow jasmine (*Gelsemium sempervirens*), were really from some other source that had been overlooked, and that the honey of the jasmine, both white and yellow, is free from poison, especially as the poison of the plant is found principally in the root. If honey is ever poisonous we must reach that conclusion, or, rather, demonstration, from cases where all possible source of contamination from extraneous sources is rigidly excluded. If poison honey is gathered from the jasmine or any other plant, we should probably have several cases almost every year, instead of the very few cases, especially as the jasmine abounds in the South, and is a great bloomer, and is quite a regular yielder of honey so far as I have been able to learn.

Before leaving this subject I will remark that the odors of flowers are produced by odoriferous cells (or glands if you prefer that term) situated in the flowers. The hard maple, which furnishes much saccharine material in the winter and early-spring sap, produces very little honey, so that, where sugar is bountiful in sap or juice of a plant, it does not follow that such plants yield honey freely; but the tulip, which has little or no sugar in the sap, yields honey bountifully.

Dove, San Luis Obispo Co., Cal.

[On page 820 you will find an article supporting your position, and a footnote defending Dr. Stell. The missing link seems to be that the doctor does not necessarily prove that plant *juices* have the same character as the plant *nectar*. If we take into consideration that the nectar of the onion flower has the same general flavor as the juices of the onion-plant itself, we have an analogy that would go to show that the nectar from a poisonous plant might be and probably would be poisonous, the same as the juices of that plant; but, as I said in the footnote to which I have already referred, the poison in the nectar would probably be much more mild.—ED.]

THE NEBRASKA BEE AND HONEY HOUSE.

HOW TO EDUCATE THE GENERAL PUBLIC REGARDING THE BEE AND HONEY INDUSTRY; AN OFFICIAL TRADE MARK FOR PURE EXTRACTED HONEY, ETC.

By E. Kretchmer.

The foregoing illustration gives some idea of the push and energy of our Nebraska brethren for apicultural industry, erected on the State Fairgrounds near Omaha, during the year 1895. It, no doubt, is the most complete structure devoted *exclusively* to the exhibition of bee-supplies, bees, and their product. The building is a substantial frame structure, measuring, as you view the illustration, 64 feet from left to right, and 50 feet wide at each end, while the central portion projects over six feet further to the front, and the two doors are covered with a so-called "lobby," surmounted with tower-shaped framework, ornamented with balustrades and flag-staffs, while immediately

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THE NEBRASKA BEE AND HONEY HOUSE, ON STATE FAIRGROUNDS, NEAR OMAHA.

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over the entrance, resting on a neatly molded lintel, may be seen an imitation of the old-fashioned German straw hive. The iron-covered roof has a dome-shaped center, supplied with swinging windows, admitting central light and ample ventilation; and over this rises a neat flag-staff, somewhat longer than the others, from which floats "Old Glory."

The inside is floored with yellow pine; the side windows are large, and so arranged as to show the exhibits to the best advantage—the glass being stained or coated white to check the effect of the direct rays of the sun. Around the sides are placed long tables or shelves on which to place the exhibits, with closet room underneath to safely keep cases, crates, boxes, etc.; a railing, placed at a suitable distance from said tables, prevents visitors from crowding each other against the exhibits; some of the honey and wax exhibits during the last fair were nearly ten feet high, and crowding against it might have caused considerable damage.

Seats are placed in various parts of the building, where the weary visitor may find rest, or refresh himself at the fountain of pure water just outside of the door.

In the center of the room stands a large glass case for the exhibit of honey and waxwork. This case is of the same size and shape as those used at the Columbian Exposition, in Chicago, in 1893, for the exhibit of honey and wax. This case, while it permits the exhibit of honey and wax in any manner, shape, or form, protects it against dust and damage resulting from handling by visitors. Next to this case a space is set apart for the purpose of practical demonstration of the manner of extracting honey; here our city friends are informed by lectures and ocular demonstration that extracted honey is nature's own pure sweet—clean, bright, and pure.

The central portion of the front side of the building, just under the words "Bees and Honey," is set apart as the superintendent's office, separately inclosed, and furnished with table, chairs, etc., and here the exhibitor may at any time, prior to the opening day, make his entries and receive his entry-cards, correctly entered by a practical bee-keeper familiar with apicultural phrases, avoiding the necessity of going to a remote part of the grounds, and then stand in line before the entry clerk in the secretary's office, awaiting your turn to make your entries.

While we admire this magnificent building wherein to exhibit the "little busy bees" and the result of their labor, we can not refrain from mentioning that this building is due to a great extent to the untiring energy of Hon. E. Whitcomb, for over ten years the president of the Nebraska Bee-keepers' Association, and to his able assistant Mr. L. D. Stilson, editor of the *Nebraska Bee-keeper*, and secretary of the Nebraska Bee-keepers' Association.

Mr. Whitcomb has been the superintendent of the bee and honey department of the Nebraska State Fair for 12 years; and the writer well remembers the remarks he made when, with his own hands, he set some posts in the ground and nailed on some boards, for the *first* separate shelter for the bee and honey exhibit. He said: "We will have something better." His extensive acquaintance with nearly all the State officers, as well as the officers of the Fair Association; his zeal for bee culture in Nebraska, his indomitable determination, bordering on to obstinate tenacity that would not take "no" for an answer, has been the foundation, cornerstone, and superstructure of this building, to which every Nebraska bee-keeper—yes, every lover of the busy bee—may point with pride.

Red Oak, Iowa, Oct. 19.

[Nov. 1st, p. 789. I stated in the biographical sketch that the Hon. E. Whitcomb was a man of influence, and that he had a way of asking, and receiving what he asked for. No doubt the credit for this magnificent bee and honey building—probably the largest and finest of any thing of the kind in the world—is due to the indomitable zeal of E. Whitcomb. Another bee keeper who has no small influence in the State is Mr. L. D. Stilson, the editor of the *Nebraska Bee-keeper*. Having introduced to you in our Nov. 1st issue Mr. Whitcomb, I now take pleasure in introducing to you Mr. Stilson.

L. D. STILSON.

Nebraska is fortunate in having two such able men as the exponents of bee culture—the one the president and the other the secretary of the State Bee-keepers' Association. They have long held these positions, and I trust they may continue to hold them, for they are certainly the right men in the right place. The way they are building up the industry in the State, and the way they are advertising the products of the hive, is evidenced in part by this magnificent honey-building. I said Nebraska bee-keepers have set a "terrific pace" in the man-

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ner in which they extended hospitality to the bee keepers at the Lincoln convention. They have set another pace for other States to follow in the erection of a suitable honey-building. I believe that we as bee-keepers scarcely realize the very great importance of having our industry properly shown up at the State fairs.—Ed.]

FOUL BROOD.

THE APPEARANCE OF THE AFFECTED COMB AND THE APPEARANCE OF THE DISEASE IN THE MICROSCOPE.

[A pamphlet, "Foul Brood and its Treatment," has recently been issued from the pen of Thos. Wm. Cowan, editor of the *British Bee Journal*, and author of other works on the subject of bees. This little treatise begins by showing the importance of the industry of bee-keeping, and the valuable service performed by the bees in the fertilization of fruit-bloom. The author then draws attention to the one great pest of bees—foul brood. After giving a historical retrospect, and the nature of the disease, he sets forth the life history, which I copy in full, as it shows what foul brood is and what it looks like—both the appearance of the comb having the disease, and the disease germs themselves, as viewed from the microscope. So far as I know, there has never yet been a photograph of a comb of foul brood, and I take pleasure in presenting one, copied from the work above mentioned. Mr. Cowan says:—Ed.]

LIFE HISTORY OF FOUL BROOD.

It will be necessary to give only a brief outline of the life history of *Bacillus alvei* to enable us to understand somewhat of the nature of this disease.

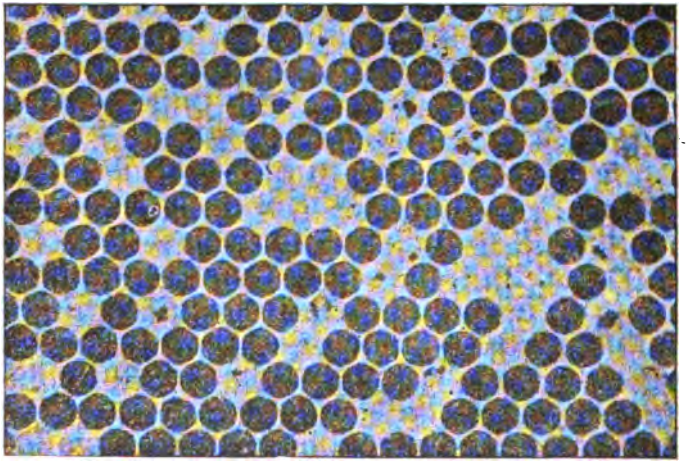

FIG. 1.—FOUL BROOD IN AN ADVANCED STAGE.

Bacillus alvei is a pathogenic or disease-producing micro-organism, in form cylindrical or rod-shaped, and increasing by splitting or fissuration. The rods increase in length without growing thicker, and at a certain point divide and separate in two, to again increase, divide, and separate. Sometimes, in suitable nourishing media, the lengthening of the rod is not accompanied by separation, but only by repeated division into longer or shorter chains of bacillus filaments, or leptothrix. The rods are also provided with a flagellum at one end, and are endowed with the power of locomotion. Under certain conditions bacilli have the power of forming spores, in which case a speck appears at a particular point of the bacillus, which gradually enlarges and develops into an oval highly refractive body, thicker but shorter than the original rod. The spore grows at the expense of the protoplasm of the cell, which in time disappears, setting free the spore. The latter formation closes the cycle of the life history of the bacillus. The spores—representing the seeds—retain the power of germinating into bacilli when introduced into a suitable nourishing medium, and at a proper temperature, even after the lapse of long periods of time. At germination the spore first loses its brilliancy, swells up, and eventually its membrane bursts in the middle. The inner part of the spore then projects through the opening, and grows to a new rod.

The spores also possess the power of enduring adverse influences of various kinds without injury to their vitality, so far as germinating is concerned, even if subjected to influences fatal to bacilli themselves. The latter are destroyed at the temperature of boiling water, while the spore apparently suffers no damage at that temperature. Freezing also kills the bacilli, but not the spores. In the same way chemical reagents, completely destructive of the bacilli, do not affect the vitality of the spores. Carbolic acid, phenol, thymol, salicylic acid, naphthol beta, perchloride of mercury, and many other substances, even when considerably diluted, prevent the growth of bacilli, but have no effect whatever upon the spores. The great resistance of spores to high and low temperatures, to acids and other substances, is due to their being encased within a thick double membrane.

There are certain chemical substances which evaporate at the ordinary temperature of the hive, and whose vapors, while not actually killing the bacilli, arrest their increase or growth. Among such substances are carbolic acid, phenyl (or creolin), lysol, eucalyptus, camphor, naphthalene, and several others.

If a healthy larva be taken, and a small quantity of the juice from its body spread on a glass slide be placed under the microscope, we shall see a number of fat-globules and blood discs (Fig. 2), among which molecules are in constant motion. If, on the other hand, a young larva diseased, but not yet dead, be treated as above, its juices will, when subjected to a similar examination, be seen to contain a great number of active rods swimming backward and forward among the blood-discs and fat globules, which latter, as will be noticed (Fig. 3), are fewer than those in the juices of a healthy larva. We shall also find, as the disease makes rapid progress, chains of bacilli — the leptothrix form — becoming common. In Fig. 4 we have a representation of a later stage of the disease when the larva is dead and decomposing. Here the fat and albuminoids will be found disappearing, and the bacilli assuming the spore condition. In Fig. 5 we see the disease in its latest stage, when the whole rotten mass has become coffee-colored, or has dried to a scale. Blood discs, fat-globules, and molecular movements have disappeared, only a few bacilli are seen, and at last, as the nourishing material becomes exhausted, only spores remain.

It will now be understood that, owing to the great resistance of the spores, chemical substances have no effect at all upon them unless administered under such conditions as would destroy the bees. From this it will be seen how great is the difficulty in curing foul brood unless the disease is attacked in its early stages.

It has previously been stated that adult bees are sometimes attacked by the disease. To prove this, it is only necessary to take a weakly bee on the point of death, and examine what remains of its

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fluids under the microscope, when a large number of active bacilli will be found. Such bees leave the hive to die, whereas the infected larvæ remain in the cells, unless disinfectants to arrest decomposition are used, in which case the bees remove them from the hives.

METHOD OF TREATMENT.

The superiority of the modern frame hive over the straw skep is here strikingly apparent. The latter was as a sealed book to its owner, who had no means of detecting the presence of foul brood except by outward signs, and these, as already pointed out, are only manifested when the disease is in its

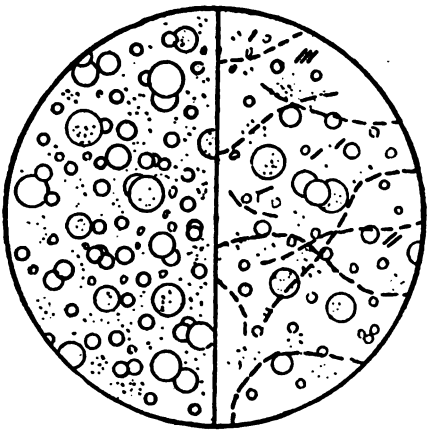

FIG. 2.—HEALTHY JUICES. FIG. 3.—EARLY STAGE.

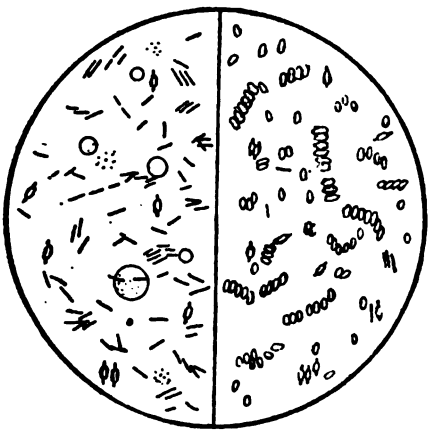

FIG. 4.—LATER STAGE. FIG. 5.—LAST STAGE.

last and most virulent stage, at which time any treatment short of total destruction is entirely hopeless. The owner of a movable-frame hive, on the contrary, can, by the facilities it affords for examining the combs, at once detect the disease in its earliest stages, and adopt measures for arresting its progress or for stamping it out altogether. Unfortunately the disease is seldom noticed on its first appearance; but it has nearly always to be dealt with when more or fewer spores are already in the hive.

If, on examining combs to all appearance healthy, with brood compact and larvæ bright and plump, we find here and there a cell with young larvæ moving uneasily, or extended horizontally instead of being curled up, and changing to a pale yellow color, we at once detect the first symptoms of foul brood. The further progress of the disease can, at this stage, be arrested by feeding the bees with syrup, to which three grains of naphthol beta are added to every pound of sugar used. This is employed by the nurse-bees in preparing food for the larvæ. We can further assist the bees by putting naphthalene or eucalyptus in the hive. The bees then usually remove the dead larvæ.

Apart, however, from experienced bee-keepers or trained experts, very few are fortunate enough to detect the disease at such an early stage, or to effect a cure so easily, and it becomes advisable to describe the method of procedure in ordinary cases—that is, when the combs have irregular patches of brood, with sunken and perforated cappings to the cells (Fig. 1) containing the coffee-colored mass inside.

If the colony be weak, destruction of bees, combs, frames, and quilts, together with thorough disinfection of hives, is by far the best course to pursue. We thus destroy the spores, and so remove the source of infection. If, on the contrary, the colony be still strong, the bees may be preserved by adopting the following method: An artificial swarm is made of the bees, which are then placed in a straw skep and fed on syrup medicated with naphthol beta. The frames, combs, and quilts are then burned. The hive is disinfected by being either steamed, or scrubbed with boiling water and soap, and then painted over with a solution of carbolic acid (one part of Calvert's No. 5 carbolic acid to two parts of water), and when the smell has disappeared it will be ready for use. The bees are allowed to remain in the skep for forty-eight hours, by which time the honey they may have taken with them, and which might contain spores, will have been consumed, and the diseased bees will have died off. They are then shaken from the skep into a clean frame hive furnished with six frames, fitted with full sheets of comb foundation, and are fed with medicated syrup for a few days longer. The skep used as their temporary home should be burned. All such work should be done in the evening, when the bees have ceased flying for the day, to avoid chance of robbing.

[A careful reading of the method of treatment as above will make it very apparent why we, in our large experience with foul brood, could not effect a *permanent* cure of the disease by the application of disinfectants in the form of carbolic acid, salicylic acid, and the like. While we could kill the bacilli themselves with the antiseptics we had no effect on the *spores*, which would hatch later, and, as a consequence, give rise to the disease again. We found it absolutely necessary to burn the combs, frames, and sometimes the hives, when it was not practicable to immerse them in boiling water.

Mr. Cowan's statements, based on his investigation with one of the best microscopes, agree exactly with our quite extensive *experience* with foul brood some years ago.

The starvation plan, in connection with burning the combs and frames, and boiling the hives, has worked best—altogether the best—in treating foul brood. It never re-appeared after such treatment, though it did in all the cases where the hives were not boiled, thus confirming the theory or fact of the *spores*.—ED.]

CRITICISM ON THE CONSTITUTION.

HOW THOS. G. NEWMAN REGARDS THE MATTER.

To the Officers and Members of the North American Bee-keepers' Association:—Having received a proof of the constitution of the proposed "United States Bee-keepers' Union," kindly sent me for criticism by the genial Secretary, Dr. A. B. Mason, with the request to have it submitted to the National Bee-keepers' Union

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at the next election, I have carefully weighed each of its provisions, and will in all kindness and candor point out some of its incongruities, as well as lack of consistency and completeness.

If there is a successful "amalgamation," the new organization should have a constitution as near perfection as possible; and as I have been requested to criticise it, I do so cheerfully, and, with the best of intention, submit the following remarks:

Sec. 2 of Art. III. and Sec. 2 of Art. IV. are inappropriate in a constitution. They prescribe who shall be officers and members in the event of the adoption of the new constitution by the two societies if amalgamated, and are clearly "out of order" in the constitution—the document to be thus submitted. They might have been subsequent "resolutions," providing for exigencies, in case of the adoption of the constitution by both societies.

Article V. creates an "Executive Committee," but nowhere are the duties and powers of that committee defined. Should the Executive Committee attempt to do any thing, it must necessarily interfere with the duties of the Board of Directors, and a conflict of authority would ensue, which might disrupt the organization and destroy its usefulness.

If the Board of Directors be not the Executive Committee, what is that Board created for? What are its duties? And, *vice versa*, it may be demanded—If the members of the Executive Committee are not to "direct" the business of the organization—what are they to do? What are their duties?

When it is sought to obtain an incorporation under the laws of the United States, or any one State, it will be found that the Board of Directors is the *only* executive authority recognized by the law, and the *only* body that can be elected by the members; that it is the duty of the Board of Directors even to elect the officers of the organization; that all business done by any other person is illegal and useless; in other words, that the Board of Directors is the only legal "Executive Committee"—the only power to make or execute the laws made for the government of the organization. If the constitution and by-laws of the organization sought to be incorporated are not in accordance with the law, they will be ordered changed by the State officers. That will cause serious delay, for, as the convention ADOPTED the constitution, after considering it section by section (as the Secretary informs me by letter), the committee was discharged and can have no further power to change or modify any thing; their duties are ended—that committee, in fact, no longer exists.

Again, in Sec. 2, Art. V., there is another serious mistake. The postal-card ballots are required to be returned to a committee of *two members*, appointed by the Executive Committee, to "count" and "certify the result." Whoever heard of a secret ballot being sent on a "postal card"? and more ridiculous is the idea that it should be mailed to *two members*—unless it is made in duplicate! Or, was it contemplated to send some to *one* member of the committee and some to the other member? Suppose those "two members" should reside at different points—perhaps some distance apart—how about their getting together to "count" them, and who is to pay the expense incurred? Or would they be required to pay their own expenses for the "honor" conferred on them by the Executive Committee? Manifestly they ought to be sent to one, and should be in a sealed envelope, to be opened in the presence of the *whole* committee, so as to preserve their secrecy and integrity.

Again, these ballots will be accompanied with the dollar for dues, and in many cases (if not all) will be forwarded to the General Manager. If they are sealed as they were last year, is that not the proper person to receive them as well as the dues? for he only can determine who is entitled to vote, by the dues being paid; then for him to call the committee together is consistent and proper, in order to open, count, and certify as to who are elected.

Art. VI., Sec. 3, provides that the Secretary of the Union "shall pay to the Treasurer *all moneys left* in his hands after paying the expenses of the annua meeting." Here is a big "loop-hole." Art. IX. states, "This Union shall hold annual meetings at such times and places as shall be agreed upon," etc. Does the Secretary pay the mileage and per diem of the officers or members, or both? If not, it would be better to have it definitely stated.

Sec. 6 of Art. VI. provides also that the Board of Directors "shall meet at such time and place as it may decide upon." How are their expenses to be paid? If mileage and per diem are to be paid it should be so stated, and the rates ought to be determined by the constitution or By-laws. If they are to pay their own expenses, that fact should also be mentioned before they are elected, for some may object to being so taxed. This is a broad country, and such a Board should be located so as to represent the whole of it; and the expense of such a compulsitory meeting would be no mean item, whether it came out of the funds of the Union or out of the pockets of the honorary Board. This is a serious matter; and in enacting such important legislation, is it not better to "make haste slowly"?

There are quite a number of other incongruities which call for discussion and review. Sec. 8 of Art. VI. should be changed in verbiage, and made Sec. 2 of Art. III. And in Art. X. the words "altered or amended" occur twice. Amendments are always alterations. Why such tautology?

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Sec. 7, Art. VI., needs a complete revision. If there can be collected no more than the regular annual dues, without a majority vote of all the members of the Union, why talk about calling for or making *extra* assessments?

If expensive annual meetings are to be held, there must of necessity be a limit to the liability of the Union for their expenses, or it will soon be bankrupt. I fully concur in Dr. Mason's remarks in GLEANINGS, on p. 670, when he says, "This country of ours is too large" to warrant annual meetings and expensive personal representation. If it is attempted to make it representative it will fail unless the Union pays the expenses of the delegates; and if the Union pays the expenses of the delegates, then it will have but little money left (if any) to pay for its only legitimate work—the defense of its members in their legal rights when unlawfully assailed by ignorance, prejudice, and malice.

The whole thing is so incongruous and incomplete that it seems necessary to refer it back to the next convention at Buffalo, for revision. Before it is in proper shape to present to the "National Bee-keepers' Union" it needs a thorough overhauling and reconstruction; and as the convention considered it section by section, and then adopted it, no one now can have the right to alter its language and requirements. There is, therefore, nothing left for its advocates now to do but to await the action of the convention next year; at least, so it seems to—

Yours for every progressive step,

THOMAS G. NEWMAN,

General Manager Nat. Bee-keepers' Union.

[I asked Dr. Mason, chairman of the amalgamation committee appointed at Lincoln, and who in fact prepared the original draft of the Constitution, to reply, and here it is:—ED.]

Friend Root:—Our friend Mr. Thomas G. Newman has kindly sent me a copy of what he calls "Criticism on the Constitution;" and in a letter with which it was inclosed he says he has mailed copies "to all the bee-papers, and a lively discussion should be the result if they publish it." I have no doubt they will publish it, and perhaps a lively discussion of his criticism "will be the result."

His criticism is addressed "To the Officers and Members of the North American Bee-keepers' Association;" but as there is no such association, I presume he means the "United States Bee-keepers' Union;" and as an officer of the Union I should like to have a hand in helping to making the discussion on his "criticism" a little bit "lively," and try to correct some of his misapprehensions.

After the constitution was adopted at Lincoln, it became my duty, as secretary of the U. S. B. K. U., to notify the Advisory Board of the N. B. K. U. of the action taken; and in order to hasten matters I asked the editor of the *American Bee Journal*, who was to publish the proceedings at the Lincoln convention, to put the constitution and the motion "that we request the Advisory Board of the National Bee-keepers' Union to put this constitution to a vote of the members of that Union at their next annual election, for their adoption or rejection," in type as soon as possible, and send me at once enough proofs for each of the Advisory Board, which he very kindly did.

I at once sent them to the Secretary of the Advisory Board, Mr. Newman, and wrote him in substance that "I sincerely hope the measure will pass, and I hope you will hurry the matter up as rapidly as possible, and get it in the bee-journals so that we can have time to discuss it before the annual election in January." It is more than probable that I asked him to make such suggestions as he might think best; but it was not sent him for the *purpose* of criticism; and as I had before sent him a copy with a similar request, and as in reply he made but one suggestion, I had no thought of his taking upon himself the responsibility of refusing to present the matter to the Advisory Board, and "refer it back to the next convention at Buffalo;" so in all kindness and candor, and with the best of intentions, as with Mr. Newman, I will try to point out what, to me, seem to be some of the "incongruities" of his "criticism."

The constitution of the N. B. K. U., in Arts. III. and V., provides who shall be members, and what officers it shall have, what their duties shall be, how they shall be chosen, and how long they shall hold their position; but it makes no provision as to when the officers are to be chosen. Now, if the N. B. K. U. can make such a grand success with such provisions in *its* constitution, what can possibly be the harm in putting similar but more complete provisions in the constitution of the U. S. B. K. U.? and if it, as Mr. Newman says, shows "incongruities" and lack of "completeness," what shall be said of the lack of "completeness" of the constitution of the N. B. K. U., in the framing of which, I believe, but don't *know*, he took a leading part?

The aim in formulating the new constitution was to in no way cripple or hinder, but, rather, to increase the scope and efficiency of the work of the Union; and its constitution was studied, and its provisions incorporated in the new wherever it seemed advisable, never dreaming that the constitution of the N. B. K. U. was so "incongruous" and so lacking in "consistency and completeness."

He says that "Article V. creates an Executive Committee, but nowhere are the duties and powers of that committee defined." Well, well! did you ever? I wonder if he read the constitution before writing his "criticism." If he did, he could hardly fail to notice that Sec. 2, Art. V., very distinctly defines one of the duties of that

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committee, and that half of Art. VIII. and all of Art. IX. are devoted to the same subject; and Secs. 1, 2, and 3 of Art VI. are wholly devoted to the duties of the individual members of that committee; and in no way, in the discharge of their duties, singly or collectively, do they, as Mr. Newman says, "interfere with the duties of the Board of Directors," and *no* "conflict of authority would ensue."

He asks, "If the Board of Directors be not the Executive Committee," what is the Board created for? What are its duties?"

If he will read the last half of Sec. 4, Art. VI., and Secs. 6 and 7 of the same article, all of Art. VII. and the last half of Art. VIII., he will find what the Board of Directors is for, and what its duties are, quite fully set forth.

In criticising Sec. 3, Art. VI., he says, "Here is a big loop-hole, because it provides that the Secretary of the Union shall pay to the Treasurer of the Union *all moneys left* in his hands after paying the expense of the annual meeting." It has been customary for the Secretary to pay the usual expenses of the Association out of the moneys he received for membership fees, and pay the remainder to the Treasurer; and I am not aware that any one has ever before thought of there being even a *small* "loop-hole," to say nothing of a big one.

If Mr. Newman considers this "a big loop-hole," how would he, if he were outside of the position of Secretary, Treasurer, and General Manager, fitly characterize the method of handling the hundreds—yes, thousands—of dollars of funds that have been in his hands as Treasurer (General Manager) without a single provision in the constitution for its safety? I have not the means at hand for knowing all about the past condition of the treasury of the N. B. K. U.; but, if my memory serves me correctly, during the years '86, '87, '90, '91, '93, '94, and '95, the General Manager handled about $5500 of the funds of the Union, and no one said any thing about a "loop-hole;" and last year there was very nearly one hundred times as much of the money of the Union in the hands of the General Manager as was in the hands of the Secretary of the N. A. B. K. A. "Those living in glass houses should not throw stones."

In referring to the meetings of the Board of Directors he asks, "How are their expenses to be paid? If mileage and per diem are to be paid, it should be so stated."

Well, for once I can agree with his "criticism;" and as no such provision is made, the very natural inference would be that "mileage and per diem" are not to be paid them, as is the case with the Advisory Board of the N. B. K. U.

He speaks of a "compulsitory meeting" of the Board of Directors, and "that the expense of such a compulsatory meeting would be no mean item." The "compulsitory" part is the last sentence of Sec. 6. of Art. VI. and is no more "compulsitory" than the provision in Art. I. of the present N. B. K. U., which says that it "shall meet annually," etc. Now, in the eleven years of its existence has the Union, which "shall meet annually," ever met? and if it has, who paid the "mileage and per diem"? Has the Secretary - Treasurer - General - Manager, been paying "the mileage and per diem"?

In referring to Art. X. he asks, "Why such tautology?" I believe I can answer that question quite readily. It is probable that those engaged in formulating the constitution (among whom were Prof. Cook, Hon. Eugene Secor, Rev. E. G. Abbott, Hon. E. Whitcomb, R. F. Holtermann, J. T. Calvert, L. D. Stilson, Thos. G. Newman, Dr. C. C. Miller, A. I. Root, Bro. Ben, Geo. W. Brodbeck, E. R. Root, F. A. Gemmell, W. F. Marks, Geo. W. York, Hon. G. E. Hilton, M. B. Holmes, E. S. Lovesy (Salt Lake City), H. F. Moore, E. Kretchmer, with myself and more than a score of others, did not represent *all* of the wisdom there is among beekeepers. Pages 737 and 738 of the *American Bee Journal* for Nov. 19, 1896, might be interesting reading for friend Newman.

It seems to me that his "criticism" on Sec. 7, Art. VI., is one of fault-finding rather than an effort to aid in so revising it as to make it better. I see nothing in it that would necessitate a "complete revision" of it, but I think it would be well to so alter it as to erase the words "extra but" in the sentence where it says, "and cause such extra but equal assessments to be made," etc.

In replying to the last two paragraphs of friend Newman's article, I will say that the constitution does *not* provide for "expensive annual meetings," and I can't understand why he so frequently refers to matters that are not even hinted at in the constitution, and have nothing to do with it, unless it be to prejudice members of the N. B. K. U. against the measure. Here is an example: "If it is attempted to make it representative, it will fail," etc. Now, there is not the shadow of a shade of reference in the constitution to any such attempt.

It seems to me that, in the last two paragraphs of his "criticism," he directly insults the intelligence of the nearly threescore beekeepers who "had a hand" in preparing and adopting the constitution, and shows his lack of consideration for the rights and opinions of others (who may be just as able as he to say what is the best course to pursue) in assuming that he has a right to "refer back to the next convention at Buffalo for revision," etc. Since when has it been the prerogative of the General Manager "to refer back," unasked, a matter that the U. S. B. K. U. has requested the Advisory Board of the N. B. K. U. to submit to a vote of its members, quite a number of whom are members of both organizations? and since

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when and by whom has it been decided that the General Manager has the power to say that a body of bee keepers—some of whom rank as the peers of any other bee-keepers—has not the right of petition? If he has this power, the sooner we know it the better; and if he has *not* this power, and he insists on exercising it, the sooner his successor is chosen the better.

The closing sentence of his article is the summing-up of the whole matter. Here it is: "There is, therefore, nothing left for its advocates to do but to await the action of the convention next year; at least, so it seems to—

"Yours for every progressive step."

Shades of democracy! "Where are we at?" Mr. Editor, wouldn't that sentence look a little more complete if put in italics, or even in large caps? "Nothing left for its advocates to do" but to wait till "next year"! Well, I think friend Newman will find that its advocates think there *is* something for them to do besides waiting, if that is the course he proposes to take; and it seems to me that about the first thing to be done is to nominate the General Manager's successor unless he at once proceeds to pull in his bellicose horns and show a little consideration for the wishes of others who have a *right* to ask that they be heard.

I believe I fully appreciate the splendid work and achievements of General Manager Newman in pushing with all his energy, often hoping against hope, till he, with the aid of the able Advisory Board, has established the Union on a firm foundation, and achieved for it victory wherever called to battle; but notwithstanding his great achievements, it seems to me that he has now planted himself squarely in the way of any "progressive step" being taken; and unless he "stands from under" he will be very apt, sooner or later, to ask, "Where am I at?" for the wheels of progress, although they may be blocked for a time, will finally roll on, despite all obstacles.

I know of no one having claimed that the constitution is perfect; but it takes nothing from the funds now in the treasury of the N. B. K. U., but adds to the funds; and instead of in any way weakening the efficiency of the work of the Advisory Board, its aim is to enlarge its field of labor and add to its efficiency; and I can see no reason why the members of the Union should not take a "progressive step" by adopting the constitution adopted by the U. S. B. K. U. at Lincoln.

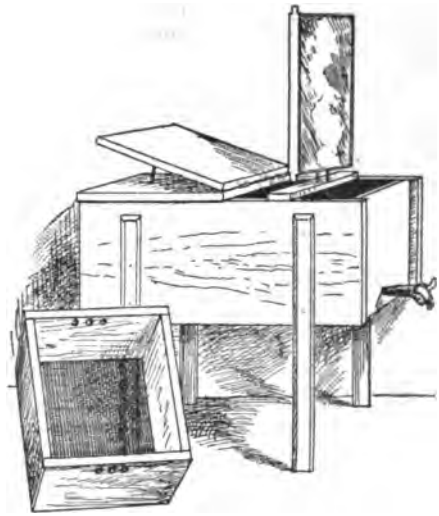
If the constitution is so adopted, the officers elected at the next annual election of the Union will be the Board of Directors of the new Union until their successors are elected at the annual election, in Dec., 1896.

Yours for the new constitution, and "every progressive step." A. B. MASON.

[See editorial comments elsewhere.—ED.]

A HANDY UNCAPPING-BOX.

The accompanying illustration is our uncapping-box with a comb in position to be uncapped. You will notice a bar across the box, through which a pin is projecting upward, which acts as a pivot when the center of the end-bar is placed upon it. One side of the comb is uncapped, when it is swung around and the other side cut off, the cappings dropping into the box. The inside consists of two boxes with wire bottoms, one of which is standing outside.



The object in having two boxes is this: When the box to the left becomes filled with cappings or pieces of comb, it is slipped to the left and allowed to drain while the other is being filled; when they are both full the one to the left, which the honey has all drained out of, is emptied in the wax-extractor; the full one is then slipped to the left, and allowed to drain while the other is being filled. The honey can be drawn off at any time through the faucet shown at the right. The cover, which is now folded back, is closed when not in use, which makes it free from ants, robber bees, dirt, etc., and also furnishes a convenient table or work-bench. We have had one of these in use for five years, and would not think of running an apiary without it. C. E. PHENICIE & BROS.

Tacoma, Wash.

[Mr. O. O. Poppleton, when here a few weeks ago, described an uncapping-box that, in outside appearance, must be very much like the one above. The internal arrangement, however, is different. Mr. Poppleton's, while about twice as long as broad, is made so as to take his frames crosswise. The combs are uncapped on a cross-stick, the cappings falling into the box near the end. In the other end the sliced-off combs are hung, and sometimes the man with the knife will have stored in the box quite a number of combs ahead of the other man, who is extracting. If there is one person, he uncaps until the box is filled with combs, and then he is ready for the extractor.—ED.]

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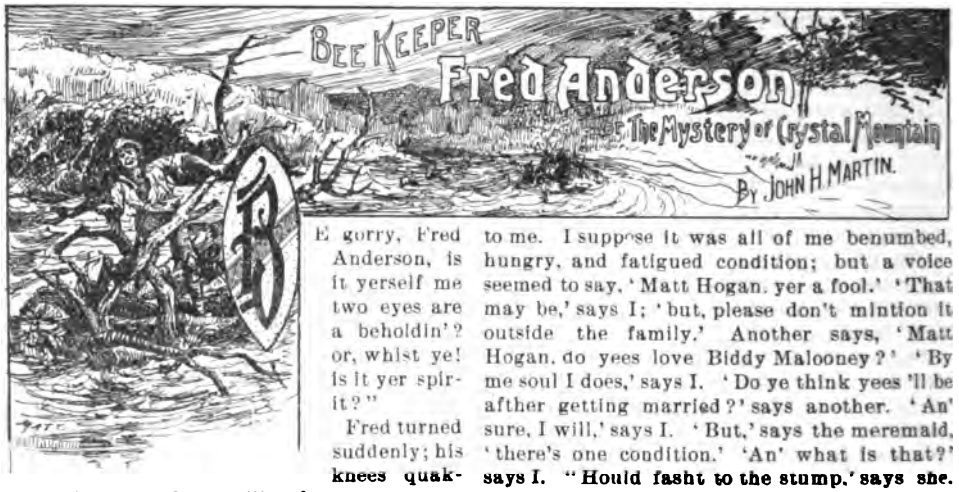

BE gorry, Fred Anderson, is it yerself me two eyes are a beholdin'? or, whist ye! is it yer spirit?"

Fred turned suddenly; his knees quaked, and he grasped the railing for support.

"Matt Hogan," said he, in an astonished whisper, then louder, "Matt Hogan, and alive! thank God!"

"Ha, ha! me dear Fred, yees be a quare janius to think me a dead man whin I am alive from the sole of me great toe to the summit of me head."

"But, Matt, how did you escape the flood?"

"An' it's the same question I'd be afther askin' yerself."

"But, Matt, that big tree-root knocked you off the raft and under the water, before my very eyes."

"An' sure I thought it served yees the same thrick."

"Oh, no!" said Fred; "that's where you lost track of me." And Fred told the story of his escape and sickness; "and you see I am rather shaky yet; but I tell you, Matt, what a load is off my mind to find you alive and well! Hurrah!"

"Hist, there, now, Fred, with yer demonstrations; yees make me blush, for this crowd will think we're loaded with tangle foot; let's sit down in some quiet corner where we can have our celebration all to ourselves. Yer anxious to know the manner of me escape; so, to make me sthory short, I will mintion that, afther shweeping me off the work-binch, that ould tree-stump took another turn jist in time to let me get aboard. 'Wid yer lave,' said I, as I sthraddled it. Thin another ould stump locked horns with it so fasht that I had a raft of me own. 'Thanks for shmall favors,' said I, 'an' hurrah for the big ones.' Me gondoly avoided all side isshues, an' kept in the middle of the river all day; an', Fred, I had no idaa the river was half so long; but, long as it was in the day time, it raached out to the crack o' doom at night; an' I began to faal loike slippin' off, quiet loike, into the flood. But, do you belave it? Miss Alfaretta's meremaids began to talk to me. I suppose it was all of me benumbed, hungry, and fatigued condition; but a voice seemed to say, 'Matt Hogan, yer a fool.' 'That may be,' says I; 'but, please don't mintion it outside the family.' Another says, 'Matt Hogan, do yees love Biddy Malooney?' 'By me soul I does,' says I. 'Do ye think yees 'll be afther getting married?' says another. 'An' sure, I will,' says I. 'But,' says the meremaid, 'there's one condition.' 'An' what is that?' says I. "Hould fasht to the stump,' says she. 'An' what if I don't?' says I. 'Why, you fool,' says the voice, 'you'll be drowned. Thin it's yer Biddy that 'll marry ould Tim Connor.' 'Bad cess to yees, to the flood, an' to Tim Connor. I defy yees all,' says I; an' I tell yees, Fred, I kept me word, an' clung to the raft. That Tim Connor idaa saved me life. Early in the morning I was taken from me raft more dead than alive by a rescue-boat, and taken to Sacramento. I kept a saying 'Meremaids, meremaids,' so they told me afterward; an' if it was maids I wanted, they said I should have them; an' they put me into the ould maids' hospital. To make me sthory short, I had a long run of faver, an' you see I am shaky yet; but the seein' of yees puts new life into me;" and the two shook hands again. "I see, Fred, fur all the bad luck yees had, yees still interested in baas."

"Yes; but, Matt, that was a discouraging blow to me. I think I will look up some other business."

"Before you do," said Matt, "you'd best see a man who is in camp near the hospital. He has a baa-ranch in the mountains—but, by me soul! there's the man now lookin' at that honey exhibit," said Matt, grasping Fred by the arm.

"Which man?" asked Fred.

"The large man with a slouch hat and long grayish whiskers. He is a docthor; come over an' I will introjuce yees."

"Good afthernoon, docthor."

"Why, Matt Hogan! glad to see you; what has come over you, Hogan? you look much better than you did yesterday."

"I have found a rimedy here to-day, docthor, that puts new life into me. Dr. Hayden, allow me to introjuce me friend Fred Anderson, the fellow I thought was drowned along with his honey."

"Indeed, Mr. Anderson, I am more than pleased to meet you. Mr. Hogan has given me a history of your conversion of a bee-cave into

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something useful, and, later, of the loss of all by the flood."

"Yes, Matt was my best helper, and I understand from him that you are also interested in bees."

"I am a little interested," said Dr. Hayden. Call at our camp this evening, where we can have a little bee-keepers' convention all to ourselves. Mr. Hogan will show you our camp. I will therefore bid you adieu until evening."

"That is what I call a fine-appearing man," said Fred; "verily, like all bee-keepers; but he seems to wish privacy in respect to his business. Bee-keepers, as a general thing, wish to give their little knowledge to all the world, and to make as many more bee-keepers as possible."

"Yes," said Matt, "there's Fred Anderson setting up one Hogan and one Buell in the business."

"That is even so, Matt; but this man seems to be an exception. I shall enjoy a talk with him."

Fred and Matt were prompt in their appearance at the camp, and Fred found a curious assortment of Indians and Indian ponies.

Dr. Hayden's greeting was cordial, explaining that it was unusual for him to be accompanied by his dusky friends; "but this being fair week I brought the boys along to give them a glimpse of civilization. But if what I see here in Sacramento is a specimen of the civilization of my race, the earlier we get back to our quiet homes the better. The tribe is not addicted to gambling, drunkenness, or debauchery."

"That is just my opinion," said Fred, "and I am disgusted with the moral aspects of this fair."

"Me friends," said Matt, "yees have not been here long enough. The bad characters are from other pairts. There's many good people here; and fur a quiet place and Christian people yees will find it in the ould maids' hospital."

"Matt is greatly taken with the Sisters of Charity," said the doctor, "since they nursed him back into health; but I am thinking they will not thank you for calling them old maids. But now about bees. You must have had quite an extended experience with them, Mr. Anderson."

For an hour the conversation about bees never flagged. Fred hardly observed that the doctor was getting to the amount of his bee knowledge; but he did observe that he adroitly evaded giving the definite location of his apiary. "In the mountains," he would say, when too closely pressed; but "mountains" was an indefinite term, for mountains were north, east, and west; and anywhere from fifty to one hundred miles away. Finally the doctor exclaimed, "Well, Mr. Anderson, I suppose you were greatly disappointed over the loss of your fine apiary and your honey—all the labor of the season?"

"I certainly was and am," replied Fred; "and since I have been here in Sacramento I have seriously thought of turning my attention to some other business."

"I don't know about that," said the doctor. "I know it appears to be a cruel blow; but are not these crushing adversities given to us that we may make our success the more brilliant?"

"I had not thought of it in that light," replied Fred. "My whole business is swept away past recovery; and if there is a brilliant success for me, the way seems to be blocked by the lack of means to work with."

"Well, now, let us figure a little," said the doctor. "You are sober and industrious, well posted in bee culture, and need a place where you can put your talents to good use. Listen to this proposition: Come to my mountain home and take charge of my apiary; and," said he, laying his hand upon Fred's knee, "you will never regret it."

MATT TELLS THE STORY.

"But, Dr. Hayden, you have not told me where the apiary is located; and should I accept your offer I should want to know where I am going. That is a reasonable request, I am sure."

"It certainly is," replied the doctor; "but for peculiar reasons, which I can explain hereafter to your satisfaction, I can not tell you about the location while in Sacramento. I can, however, conduct you to the place; and after examination, if the outlook is not to your liking, you can return at my expense."

Though Fred was not really satisfied with this arrangement, his curiosity and love of adventure were excited. Dr. Hayden's kindly manner also prompted him to accept the offer.

While considering the matter, Fred's thoughts centered upon Alfaretta. Their lives had of late been bound together by so many episodes that he was fain to stay near her all the rest of his life. But he further reasoned that a few

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months' absence would enable him the more clearly to realize the condition of his own mind, and also enable him upon his return to detect, if there was in her, any real mental improvement. With these thoughts in mind he decided to cast his lot with Dr. Hayden; and, turning to him, he said, "I would accept your offer, doctor; but as you leave to-morrow afternoon I could hardly be ready to accompany you. I have an errand to perform. A very kind friend of mine up the river—Prof. Buell—"

"Prof. Buell! Buell," interrupted the doctor. "Prof. Buell? Why, that name sounds half way familiar; but my professor was plain Bull—a good strong name—Bull, and a good man he was too."

"Well, Fred," said Matt, after leaving the camp, "yees are gettin' along foine with the docthor; and something whispers me (perhaps it's one of Alfaretta's meremaids) that yees will make a good sthrike to go with him. Respectin' the pony, I will see to its delivery to Mr. Buell, for I must go up the river soon."

"It seems that things could not be more nicely arranged for my departure," Fred replied.

Matters were satisfactorily arranged the next day, and late in the afternoon the little band left camp. Dr. Hayden, having in mind Fred's recent illness, provided him with one of the easiest-riding ponies; "and," said he, "you will scarcely know the difference between that pony and saddle and a rocking-chair."

"WELL, SIR, MY APIARY IS LOCATED IN THE MIDST OF THAT SPARKLE, CRYSTAL MOUNTAIN."

"Prof. Buell, as I was saying," continued Fred, "commissioned me to purchase a gentle riding-pony for his invalid daughter."

"That's another familiar feature," said Dr. Hayden, reflectively. "My professor had a daughter, but Bull was the name—Bull. But the pony I have is just what you want. We brought in a few pack ponies, and shall have but few things to pack to the mountains, and can spare one—a pretty black pony, gentle, fleet of foot, with all the qualities for a lady's horse. You have plenty of time to-morrow to give the pony a trial. Take it over to Matt's old maids' hospital and give each dame a ride."

Fred had so much confidence in the doctor that he had a mind to accept the pony then and there; but he deferred his decision until the morrow.

They pursued a northwest course, traveling upon unfrequented roads, and well into the night of the second day they camped beside one of those beautiful lakes which give Lake County its name.

"Your companions must be familiar with this route," said Fred, "to follow it so easily in the night."

"Not only the Indians but their ponies know every inch of this ground," said the doctor, "and to-morrow night we make our last stage; and I will tell you now that we shall then be in the Round Valley Indian Reservation."

"Round Valley?" repeated Fred; "why, I have heard that those Indians bear an ugly reputation."

"You should not believe all you hear," said the doctor. "You said a little while ago that,

from your observation, this is not much of a honey country; but appearances are deceiving. To use a mining term, this country has pockets of honey flora in the mountains second to none in the world. It is so with the Indians. People are unfavorably deceived respecting them."

The last night of the journey wore away. So much night travel caused Fred to sleep more or less in his saddle while his pony bore him safely forward. The morning dawned brightly as they commenced the descent into Round Valley.

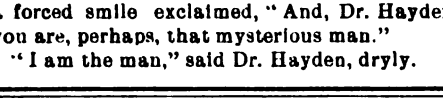
"Now," said the doctor, riding up to Fred's side, "I can show you the location of my apiary. Here we see the Indian rancheria in the valley; but look beyond to those mountains, twenty-five miles away. Do you see that glistening in the morning sun?"

"Yes," replied Fred, "it looks like a city with gilded spires."

"Well, sir, my apiary is located in the midst of that sparkle, and that is Crystal Mountain."

"Crystal Mountain!" said Fred, in astonishment. "Why, doctor, ever since I came to California I have heard nothing but evil reports from that locality. The man who claims to own it is described as a brigand, a thief, a murderer—sly, treacherous, unknown, yet luring a score of people to their death; and your apiary is there!" and Fred, grasping his bridle-reins, and turning suddenly in his saddle, with a forced smile exclaimed, "And, Dr. Hayden, you are, perhaps, that mysterious man."

"I am the man," said Dr. Hayden, dryly.



COMBS ATTACHED TO SEPARATORS.

Question.—Will you tell us, through the columns of GLEANINGS, how to prevent the bees fastening the comb to the separators? I had several colonies which attached the comb in nearly every section to the separators—some in only one place, while a few were attached in several places. Other colonies gave perfect combs, not a single attachment being made to any separator.

Answer.—Were I to answer in short, I would say, "Put each colony in just the condition as were those which did not attach a single comb to any separator;" and I sometimes think such an answer would be the best reply that could be given in the majority of cases; for it would set the person, having the trouble, to studying into that which would make him (or her) an intelligent bee-keeper, through creating in him a determination to master every problem which might come before him along the line of our beloved pursuit. But as the managers of GLEANINGS have set this department apart for making plain those things that are puzzling to the novice, I will give some of the things which contribute toward an attaching of combs to the separators, which things are to be avoided.

The greatest cause for attaching combs to the separators lies in not having the hives stand level, for the bees always build their comb perpendicular—especially so in the case of narrow or thin sections, where the uprights are no more than 1⅝ inches wide, as in this case it requires but very little out of the perpendicular for the lower end of the comb to come near enough to the separator for the bees to build brace-combs out to the separator to hold the comb in place, as they nearly always look out for bracing in this way where the septum of the comb comes within ¼ to ⅜ of an inch of any part of the hive. It is not necessary that the hive be leveled both ways, unless the combs in the brood-chamber run in an opposite direction from those in the sections; but it *is* necessary to have the hive level in the direction of the open sides of your sections if you would produce the nicest of section honey. And it is not well to do this leveling with the eye, for, unless the eye is trained in this matter, it is little better than guesswork. I use a spirit-level for this work; but in the absence of this I would use a plummet, which any novice can make.

Next to having the hives level comes the matter of how the starters are put in the sections. If in a slip-shod way, so that they pull off or fall down from the weight of the bees before they thoroughly attach them to the top of the sections, poor combs and many braces will be the result. Then if care is not taken to have these starters run true with the sections, they will be angling enough so that the bees will swing the edges of the combs around and attach them to the separators instead of the sides of the sections, thus making a nasty mess when we come to remove the separators. Even where full sheets of foundation are used, some are so careless in putting them in that the edges are nearer the separators than the sections, when placed on the hives, when the bees will attach them to the nearest point, as they always do, for they care not as to the salable quality of their product. But in full sheets of foundation and a level hive we have the greatest preventive against these brace-combs, and latterly I have come to the conclusion that it does not pay to try to dispense with full sheets of thin foundation for each section, only as we have full sheets of drawn comb to use in place of the foundation. But the full sheets of foundation will not remedy the trouble where the hives are much out of level, for the bees seem to have a way of building or drawing out their cells on the side of the foundation farthest away from the separators first, which tends to curl the lower end of the foundation around nearer the

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separator, till the bees attach it to the separator instead of the bottom of the section.

Next in order comes the putting-on of sections while the colony is too weak to fully occupy them, these weak colonies commencing on the "bait" sections first, and then spreading out from there in either direction; but as it is the warmest and most homelike on the sides next to the center, they draw out the cells near the center of the foundation, up and down, first on this inside of the foundation, which causes it to curl at the sides till it comes nearer the separators than to the sides of the sections, and thus it is attached to the separators instead of to the sections, where it should be.

Lastly, this trouble may come from putting the sections on too early in the season, before the honey-harvest commences, or allowing them to stay on the hive during a long period of scarcity, when the bees, not having any other work to do, amuse themselves in gnawing the foundation, from mischief, or because they think it is some foreign substance not needed in the hive, or to use the wax thus gnawed off to stop cracks or crevices about the hive. It matters not from what motive this gnawing of the foundation is brought about, it can result only in less perfect combs than would have been the case had a good honey-flow come on immediately after putting the sections on the hive. Such gnawing more often results in the twisting-about of that part which is left, than otherwise, and, in thus twisting some portions of the foundation, come nearer the separators than the sides of the sections, when brace-combs are the result. The putting-on of sections too early in the season can be easily avoided by studying our location as to its flora; but as we can have no control of the secretion of nectar, or the periods of scarcity coming after the sections are on, this part of the matter can not well be overcome where the ordinary foundation is used, unless we can breed a race of bees that will not gnaw the foundation when they are idle. The new foundation now being worked on (which I hope may be brought to perfection), having quite a depth of cell, will overcome this gnawing matter, I think; for in all of my observations I have never known bees to cut out drawn comb, no matter how long they were idle.

Now, by avoiding all the things which tend toward these brace-combs being attached to the separators, we can have perfect combs, and honey of the highest quality, all other things being equal; and I have so far overcome this matter that hardly one section of honey out of 300 is defective along this line.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

HEART'S-EASE.

I call attention to an error on page 790 of Gleanings. The "heart's-ease" or smartweed mentioned by Mr. Stilson is a species of *polygonum*, and belongs to the buckwheat family and not to the violet family, as the editor supposes. It is one of the many instances of confusion of common botanical names. Heart's-ease properly refers to the pansy, or to its prototype, the species *Viola tricolor*, which belongs to the violet family. The various species of *Polygonum* are known by the common names, "smartweed," "heartweed" (from the heart-shaped markings on the leaves of some species), and incorrectly by "heart's-ease," which in this case is doubtless a corruption of heartweed.

Gray gives the name smartweed to the section *Persicaria*, to which section the plant in question belongs. To the whole genus he gives the common name knotweed, doubtless from the fact that they all have swollen joints. Several of the polygonums are valuable honey-plants; but aside from that they do not have much economic value, as does their near relative the common buckwheat.

Boulder, Colo., Nov. 6. D. M. Andrews.

[After Nov. 1st issue went out, and before yours came, I noticed the error and corrected it in the next number (see page 812). But heart's-ease is now an accepted name for a species belonging to the *Polygonaceæ*, and in the *later* botanies you will probably find this name recognized. It is accepted by the Standard Dictionary, and the Latin for the heart's-ease in question is *Polygonum persicaria*.—Ed.]

BEES AND BEARS IN FLORIDA; "SHOOING" THEM OFF WITH AN APRON.

Bees do better here near the swamps, and sometimes people take them to the swamp and leave them; then the bears generally take to them and rob a hive every few nights, which destroys the bees as well as the honey. They don't use the care in robbing bees that men do. I have known bears to come within a hundred yards of a man's house and take honey from his bees at night. They do sometimes climb a tree that has bees in it, and gnaw the hole larger, then run a foot in and get out as much honey as possible. I know one tree this year which was cut, and had been robbed of the honey by a bear. I cut two trees this year, hived the bees, and left them in the woods; and when I went back to rob them a bear had taken the honey, and the bees were gone.

Bears are plentiful here, but are wild, and hard to find. They gnaw a good many pine-trees. It is said they gnaw them to get the gum off the tree on their hair to keep yellow-

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jackets and bumble-bees from stinging them, for they dig out lots of their nests. But they do their mischievous and damaging work on hogs. C. B. OWENS.

Cassia, Fla., Oct. 31.

[Mr. O. O. Poppleton, who visited us recently, gave us substantially the same facts regarding the habits of the bears in Florida. In speaking of their temerity, or lack of it, rather, he said his wife, alone, and after nine o'clock at night, was met by a bear who, like herself, was in search of turtles' eggs. Did she run and scream? Not a bit of it. She simply "shooed" him off a scampering as she would a lot of chickens, and then gathered the eggs. I think it would test the courage of most *men* to test a *bear's* courage in a similar way, even if they had been possessed of one of the aforesaid aprons.—ED.]

THE photograph of the Lincoln convention is very good. It can be obtained of Lovell, photographer, Council Bluffs, Ia., for 50 cts. Later on I hope to present our readers with a half-tone of it, having obtained the consent of Mr. Lovell.

B. S. K. BENNETT, of the *Pacific Bee Journal*, is said to have cited certain banks as references, without authority. This same Bennett is the one who has been attacking George W. Brodbeck and the Bee-keepers' Exchange. If Mr. Bennett seeks the favor of bee-keepers of his State he should change his tactics a little.

A NEW book on bee-keeping, for British bee-keepers, by Chas Nettlesmith White, is just out, and it is entitled "Pleasurable Bee-keeping." It contains 185 pages, nicely printed, and is full of illustrations. It seems to cover quite fully bees for pleasure and bees for profit, and will no doubt fill a niche in English bee literature. The price is not stated, but it can be obtained of the publisher, Edward Arnold, 37 Bedford St., London, W. C.

ON page 826 of our last issue I suggested that bee-keepers might clamor for a new General Manager for the new Union, on the ground that the present officer, Mr. Newman, was located on the Pacific coast, clear away from the cities of Chicago and the East, where the evils of adulteration were the greatest. In a private letter referring to this, from the editor of the *American Bee Journal*, he calls attention to the fact that some might construe this as meaning that he, Mr. York, ought to be the new Manager. In justice to my brother-worker, I will say that his duties are such that he could not be constrained by love or money to accept the position. As some of his friends already know, he is already an overworked man, and another straw placed upon his back—well, he wouldn't take it. In the preparation of this editorial I did not have in mind Mr. York or any one in Chicago; and for fear that some might think that I am seeking the job, I will say right now and for all time, that I can not consider it for a moment. I have too much other work on hand to do it justice.

MR. MERRILL, of the *American Bee-keeper*, says that "no doubt" the resolution passed by the Lincoln convention, condemning the action of the Erie Co., N. Y., Bee-keepers' Association, recommending the general Government to send an expedition to India to secure *Apis dorsata*, was "by the dictation of the half-dozen wise men—Messrs. Root, York, Miller, Dr. Mason, etc.;" that "this convention of war-horses usually run things pretty much their own way when they get together." Mr. Merrill, if I am correct, never attended more than one of the North American conventions, and that, unfortunately, was one where some discord was apparent—much more so than in any dozen preceding conventions. All conventions of this association should not be judged by this one. The action at Lincoln condemning the Erie Co. recommendation was *not* "at the dictation" of any of the gentlemen named; neither had they any thing to do with it beforehand. The resolution was introduced by Mr. Stilson, of the *Nebraska Bee-keeper*, and upon mature deliberation was passed without a dissenting vote. The main argument used was that there were other things much more needed than the importation of a new race of bees.

RIDGEPOLE MUSINGS; ALFALFA AND THE WEST.

IT may not be generally known that R. C. Aiken and family, formerly of Loveland, Col., a bee-keeper and correspondent of considerable prominence, is now migrating eastward and southward. He has a specially constructed wagon that I suppose takes largely the place of the good old-fashioned "prairie-schooner." Driving through the country as he does, he has a large opportunity for observation. If I am correct, he travels this way in order to study climate and localities better, for he expects to carry on his bee-keeping operations in a new field; and his point of residence not being fixed he is taking his time to look over carefully the country through which he passes. He had arranged to travel so as to be in Lincoln at the time of the convention, Oct. 8th and 9th. He took a prominent part in the proceedings, and gave to the convention much valuable information regarding the West and alfalfa.

Between sessions, I sought him out and proposed that he write a series of articles for GLEANINGS, telling us about alfalfa, the West,

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and his travels through the country generally. An arrangement was made whereby he will write a series of articles under the appropriate title of "Ridgepole Musings," for he formerly occupied the very ridgepole of the continent. He will show us later on his "prairie schooner," the hive he has been using, and then tell some of the drawbacks in the alfalfa-fields. The alfalfa localities have been boomed too high, he says, and there is another side to the story.

THE ABSURDITY OF SOME OF MR. CHESHIRE'S STATEMENTS ON THE SUBJECT OF FOUL BROOD.

An excellent article on the subject of curing foul brood, by Mr. G. M. Doolittle, appears in the November issue of the *American Bee-keeper;* and what he says regarding the accuracy of Frank Cheshire's statements on the subject of foul brood accord with my experience exactly. Mr. Cheshire in his work, "Bees and Bee-keeping," used this language: "The popular idea that honey is the means by which foul brood is carried from hive to hive, and that mainly through robbing, is as far in error as that only casually can honey convey it from colony to colony." Mr. D., commenting on this, says it is so directly at variance with what is said by Mr. Quinby, Jones, and his own experience, that it seems strange to him that any of our apiarists could indorse it. I don't believe any of our apiarists do indorse it, friend D. I remember seeing the statement at the time when Mr. Cheshire's work came out, and our own experience convinced me that on this subject, at least, he had very little practical experience. It should be remembered that he condemned most severely certain statements by Prof. Cook and other leading bee-keepers as erroneous, and so inaccurate as to be unworthy of further notice. As time goes on, the statement of Mr. Cheshire, as given in the above quotation, will be proven to be more and more a glaring error, and mischievous, because some, accepting it as fact, will be careless with honey coming from foul-broody hives. Doolittle goes on to show how, by his own experience, honey is the *chief* means of conveying the infection (which it surely is), and then draws attention to another ridiculous statement where Cheshire says, "There is not one single idea about this disease which is not incorrect, except that it is contagious. Time, I am convinced, will fully prove that the old bees almost invariably are the channels of infection."

It is not wise to be very positive about any thing in bee keeping; but there is one thing I think I do know; and that is, that old bees are *not* "almost invariably the channels of infection." We cured something like 50 colonies by putting all the bees, including the old bees, on foundation in clean hives. In *not one case* so treated did the disease ever reappear; yet this would not be so significant were it not that all bee-keepers like Mr. Doolittle, who have had any experience with foul brood, corroborate it. If Cheshire had not been so severe in his criticisms of the statements of others his own errors would not appear so glaring.

CREAM-COLORED SECTIONS AND SHIPPING-CASES.

In our previous issue I spoke of, and I believe I showed the desirability of, using cream-colored sections rather than white, even at the same price. It not unfrequently happens that the sections are whiter than the combs. It is not the *sections* that the bee-keepers desire to sell, and show up to advantage, but the *combs* which they contain. For a similar reason, shipping-cases should be made of the darker shades of basswood. One little realizes the difference in favor of the darker woods until he compares the same set of combs in a snow-white shipping-case and one of cream-colored basswood. This snow-white dress for sections and shipping-cases has been a foolish fad, and the sooner it dies out the better it will be for the producer.

The fruit-growers have their peaches and grapes put up in baskets covered with mosquito-netting of a higher color than the fruit; for instance, peaches will be covered with a very bright colored pink mosquito-netting. The effect of this netting is to give the peaches a color and bloom that they do not possess. Now, I am not advocating that bee-keepers should try to make their combs look whiter than they really are, but I do advocate that they use those sections that will give their combs the *full value* of their color; in other words, make them white by comparison.

By "cream color" I do not mean the dark second quality of sections, but those that are a shade darker than the so-called "show-white"—just dark enough so that the white combs do not suffer by contrast.

Since the foregoing was written, the following has come to hand, bearing on the same question, but taking the "other side."

ANENT "SNOW-WHITE SECTIONS, AND THE EFFECT OF CONTRAST," AND WINTERING.

E. R. Root:—If your argument on page 826 is valid, why is it not better to paint the sections black? The contrast would be stronger, and any cheap material could be utilized for sections. You wouldn't have to scour the country for white poplar, nor sort your basswood lumber. But do you really think any section that was ever made was any too handsome for white clover, basswood, or alfalfa honey, or even for buckwheat honey? The comb and cappings of the latter are just as white as snow, and its appearance is enhanced by a beautiful section just as truly as any other kind of honey. I never saw any first class section honey, commercially considered, that wasn't in first-class sections. Did you?

But how about that Danzenbaker section honey shown at the Michigan State Fair, which you told me about? Wasn't that put up in white sections? I believe you are joking on page 826.

I cellared 58 colonies of bees November 12. It took self and hired man about two hours. You may talk all you please about chaff hives and outdoor winter-

ing; but I am convinced that for this locality cellar wintering is not only the best for the bees but the cheapest mode of wintering. I could not protect with chaff and outside cases for less than one dollar per colony; but it doesn't cost me five cents apiece to put them in the cellar and remove them in the spring.

A year ago I left on their summer stands two of the strongest colonies in their yard. I protected them by setting boards on all sides but the south, and put cloths over the frames. We didn't have a severe winter, but both were dead before spring. This is the first time in all my experience when I had the temerity to leave any outdoors. I shall not try it again, unless I get lazier as I get older. For many years I weighed my bees in and out. The loss in weight was always less than ten pounds average; time, about five months. EUGENE SECOR.

Forest City, Ia.

Painting sections black on account of cost would be out of the question. Using the darkest available lumber—black walnut—would likewise be out of the question for the same reason. There is a golden mean in this matter. A black or dark section would be one extreme, and a "snow-white" would be the other.

No, I don't think a section was ever made too handsome for white honey in point of workmanship; but in point of color, bee-keepers in their demands have gone to the extreme. Sections have had to be as white as or whiter than the average of honey.

When goods are displayed for sale, the public judges by comparison. If the *honey* is perceptibly whiter than the *sections*, said sections a little darker than the so-called snow-whites, the *honey* will appear whiter, and to much better advantage. Bear in mind that the producer wishes to set off his *honey* rather than the *sections*. If the section is *as white* as the honey, there is no contrast in favor of the honey. If again, the section is *whiter* than the honey, the contrast favors the section, and the honey itself, the very thing to be sold, appears at a disadvantage.

Now, let me ask *you* a question: Do you really think any comb honey—clover, alfalfa, sage, or what not—was ever as white as snow, strictly speaking? I don't; and when we speak of comb honey as being snow-white we are speaking in a term of hyperbole, just as we say a horse runs like lightning, when we don't mean any thing like that speed.

You say you never saw "any first-class honey, commercially considered, that wasn't in first-class sections." Neither did I. Don't misunderstand me. I was not advocating second-quality or number twos, either in workmanship or lumber. I did not mean to give the impression, as you will see by re-reading page 826, that I favored dark, checkered, or sappy wood, or sections that were not first-class. I did mean, however, a uniform color, sound basswood timber of *a shade slightly darker than the very whitest basswood.*

That Danzenbaker comb honey was not in the so-called "snow-white" basswood, but in sections of a color described in the italics above. That would go to prove my argument.

Regarding the matter of wintering, I have no doubt but that, for your locality, cellar wintering is the better. In fact, in our A B C of Bee Culture and other literature we say that, for some localities, cellar wintering is better, and for others the outdoor system.

MR. NEWMAN AND HIS CRITICISM.

ON page 853 appears General Manager Newman's criticism on the constitution that was adopted by the Lincoln convention, and which was published in our Nov. 1st issue. To say that the staff of GLEANINGS was surprised at such uncalled-for criticisms is putting it very mildly indeed.

If Mr. Newman was *really anxious* to bring about amalgamation, why did he not offer his criticisms before? Practically the same constitution was published on page 684 of our issue for Sept. 15—at least three weeks before the Lincoln convention. He could have very easily lodged these criticisms with the Secretary, Dr. Mason, and the same would then have been duly considered by the North American. He would then have saved all this space in the bee-journals.

I may be wrong, but I believe Mr. Newman's policy, while apparently favoring amalgamation, has been at heart one of delay and obstruction, and this same thought has been suggested in a private letter to me by one of Mr. Newman's friends. It seems that hardly one of his criticisms is valid, and that he was *trying* to find fault in order to prevent and possibly postpone amalgamation indefinitely. If this is his policy, GLEANINGS will take every honorable and fair means to defeat him; and if he is a candidate for reëlection it will work to defeat him in that also.

Many of us worked hard to get the constitution of the present Union amended so that it (the Union) could use the funds for prosecuting dishonest commission men and adulterators of honey. I predicted that the membership on such a basis would be increased. After the Union was reorganized the membership was increased slightly in anticipation of its doing new work. But what has Mr. Newman done in the way of fighting adulteration and dishonest commission men? Practically nothing.

Mr. Newman's criticisms are strained, ill timed, and, as Dr. Mason says, a direct insult to the intelligence of some of the best men in our ranks. His efforts to read into the constitution some *awfully* bad things that are not in the text at all, and then hold them up to ridicule, are certainly as absurd as they are uncalled for. To refer to a secret ballot, for instance, when there is nothing of the kind mentioned, and to make so much ado about paying the expenses of delegates when there is nothing of the kind in the constitution, shows that Manager Newman was hard up for something to pick at.

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OUR HOMES.

I am come that they might have life, and that they might have it more abundantly.—JOHN 10:10.

The words of the above text occurred to me while I was thinking that Christianity was really at the very foundation of all civilization, life, and light in this world of ours. A faith in Christ Jesus gives humanity *life* in the best sense in which the word can be used. It raises up and ennobles humanity and human life. It makes men after God and in his own image. It is really the stepping-stone to education. As a rule, the schools and colleges of the world are founded on a faith in Christ. Truly did he come into this world of ours that we might have life, and have it more abundantly.

This thought was brought to my mind with more emphasis than perhaps it ever was before as I listened to a talk last Sunday evening from a woman whose lifework has been teaching in the far West. For many years she was in the employ of the New West Educational Society. She gave us a sort of word-picture of her labors in one little town in Idaho. She was sent there about fourteen years ago. At that time there were no schools within many miles in any direction. The children were growing up entirely destitute of school privileges, and they were really *hungering* for a school. The town as she found it was composed of cowboys, Indians, and a class of people who are often found in the vicinity of the mining regions of the far West. I hope that no reader of GLEANINGS will feel hurt when I mention that the Mormons were pretty well intrenched there at the time. One of the leading men of the town had fifteen wives all together. As a rule these Mormon friends were opposed to the Yankee schoolma'am, on general principles; for, as a matter of course, if she taught Christ Jesus she would, at least in the end, be a rebuke to polygamy. Our good friend Miss Virginia Dox was, however, agreeably surprised to find a warm welcome awaiting her. The fact is, the fathers and mothers, and chil ren too, had been longing for a school, and they were so eager to see a school started in their town that they forgot all differences, and warmly welcomed the little schoolma'am. There was no schoolhouse in the town; but in order to begin work at once, a vacant dwelling was secured. Nobody knew how many pupils would come; but they thought that, if the largest room should not prove sufficient, she could occupy two rooms, the door being open between them. If I remember correctly, there was more than a roomful the very first morning. The juveniles took their places on cheap wooden benches that had been hastily provided, and waited anxiously to see what the schoolma'am was going to say to commence with. Her remarks were something as follows:

"Children, we expect to have a real good time here together; but in order to do so we must have law and order. Now, I am not going to read a lot of rules, but I am going to give you just one rule to take the place of all others. This one rule must be that we love each other. Unless I love you, I can not really do you any good; and unless you love me, you can not really do *me* any good; therefore the one rule of our little school is to be that we love each other."

Under the influence of this same love between pupil and teacher, this school began to thrive. The children soon had such glowing accounts to give of the wonderful things that they had learned at the school that the older ones caught the enthusiasm and wanted to go too; and the little teacher gave each a very warm welcome. The older ones used tobacco, both boys and girls. She said that, if she had ruled out tobacco to start with, she would have ruled out the greater part of her pupils. Blasphemy among the older boys—aye, and some of the girls too—was also a common thing in that Idaho town. She did not stop the swearing all at once, but she made up her mind that it would have to go eventually.

Pretty soon the parents caught the fever. Before the school opened, beer-drinking was so common that almost the whole of the inhabitants patronized the saloon more or less. This she passed by for a while; but her triumph came later on. When some of the *parents* talked about going to school she told them smilingly that she would do the best she could for all who wanted to come; and it was no uncommon thing to see fathers and mothers studying in the same class with their children. She mentioned seeing a man of forty-seven in the same class, and studying the same book, with his little girl *seven* years old; and the girl was the brighter and better of the two in their recitations.

At first everybody who owned a dog—and almost every one did own one there in those days—had to bring that dog to school. Perhaps the dogs were curious in regard to the new points of interest; but by degrees the teacher managed to draw the line, excluding the dogs during school hours. Had she undertaken to banish the dogs at the outset it would probably have banished pupils, or a great part of them, as it was so common to see the dogs everywhere.

By the way, dear friends, have you never noticed how common a thing it is to see a town of two or three hundred people all becoming enthusiastic over some particular new thing that comes up? This new thing may be pitching horse-shoes or playing marbles or flying kites; it may be skating in the winter time; it may be having spelling-schools; yes, and sometimes beer-drinking and smoking tobacco seems to take the energies of all classes of one of these little towns. Under the guiding hand of some good and wise leader a community of this kind *may* all get a fever for getting an education; and what a glorious thing it is when this is the case! Well, this one town and the country roundabout seem to have been strongly taken with a wonderful craze to *go to school* and learn to read. The cowboys caught the fever, the Indians abandoned their usual habits, and they came too, and made their flat noses still flatter against the window-panes of the three-room schoolhouse. The teacher, it seems, had a wonderful gift for the work, and, besides, her heart was full of the grace of God and the love of Christ Jesus. She went out and took the Indians by the hand and won their confidence so as to bring them in also. When the mothers also began to come, bringing their babies with them to such an extent that it was a serious interruption to the lessons, she planned an evening school for the benefit of the mothers. The children could stay at home and take care of the babies while the parents went to the *evening* school.

Perhaps some of you may laugh at the idea of such a school as Miss Dox kept. Instead of saying "yes" to a question from their teacher, she would be more likely to get "you bet, schoolma'am." She says she remembers one great stalwart specimen of manhood who was so slow in answering the questions she gave him that she was about to pass on to the next. Said he, "Just hold your horses, schoolma'am. I have got it all in my head, and I will get it all out on the square if you will only give me a little time." And, true to his promise, he did.

When she had obtained a sufficient hold on the whole community by her cheerful and bright way of teaching, a Sunday-school was proposed. The Mormons held some sort of services on Sunday, and they raised some objection, fearing the new Sunday-school might conflict with their teachings. But she compromised the matter by agreeing to attend their Mormon services if they would attend her Sunday-school; and she even told them that they might convert her to their Mormon religion if they could do so. She had the grace of God in her heart all day long; and, as a consequence, the Sunday-school flourished like the day school, and crowded every thing else into the background.

The saloon-keeper was quite a friend to the school business until he saw that it was spoiling his custom; then he remonstrated some; but the good-natured schoolma'am was too much for him. The profanity that had been so common was giving way day by day and week by week as the result of that Sunday-school, and people came from miles around to drink in the glad tidings that were sure to be proclaimed every Sunday.

In the neighborhood was a girl of seventeen who was caring for a poor intemperate father and a family of children. In her zeal to have the children get an education she went out in the woods and cut down trees, and did almost every sort of man's work. She had such a reputation for training and breaking wild mules and horses that they named her Wild Anna; and when Miss Dox found her she was the center of a crowd gathered in front of the saloon while bets passed from mouth to mouth as to whether Wild Anna would succeed in conquering a vicious mule, as she had succeeded in taming all that had heretofore been brought to her. Anna had a peculiar gift for managing horses. She too caught the fever, however, and wanted to go to school and be taught to read and write. I can imagine how our little schoolma'am thanked God when this great stout girl of only seventeen came to her to be taught as a little child. She had not been there many days before the schoolma'am took her by the arm and proposed that they should go out to walk one noontime. During that walk the teacher told her the story—the old, old story—of Christ and him crucified. The wild girl was touched. She confessed she had never heard any such wonderful story before.

"Why, teacher, can this man of whom you have been telling me—can he be the Jesus whose name I have taken upon my lips, especially while with those men breaking their wild horses? Can it be that this one whose name I have so often taken in vain was he whom God sent down from heaven to call poor sinners such as I am to himself?"

Then she stopped her coarse talk right then and there. As a means of providing food and clothing for the poor father and motherless children she kept on, I believe, using her rare gift and skill in training vicious horses; but from that day forward she was a friend of the little schoolma'am.

In those days, in the mining towns remote from railways there were more or less stage-drivers; and among others who were called to come to that new Sunday-school was one Jimmie Boyle, a stage driver. He had patronized the saloon so long that his clothes were ragged, his hair and beard untrimmed; and when one of his friends asked him to come, rough and rude as he was, he recognized the need of fixing up a little. Without saying a word to anybody he scraped up his money, made a long trip to Ogden, Utah, and purchased a brand-new suit of clothes. When somebody joked about it he told them his new suit was simply his "trotting-harness;" and much was the merriment when Jimmie presented himself so fixed up that nobody recognized him, and brought in the wake his wife and children. Henceforward he was a strong and faithful champion of the little schoolma'am and of the Sunday-school work.

There was in the town a notoriously wicked man, but he was a man of some wealth. Somebody told the schoolma'am that, away back in days gone by, this man had been a professor of religion. She called on him, and God answered her prayers by causing the man to renounce his profanity and intemperance, and to come out clothed and in his right mind, a champion and defender of the Sunday-school.

Three years had passed, and the reputation of that school was still growing, and pupils were coming from far and near. The untiring litt e woman who had already accomplished so much slipped in getting out of a wagon, and the result was such that she was obliged to go to a distant city for surgical relief. She returned with her limb in a plaster cast, telling her friends and pupils that she would have to give up her school. When the news came, not only did the children and fathers and mothers implore her to stay, but the cowboys formed themselves into a committee, and volunteered to bring her in an easy wagon to and from the school, and carry her in her arm-chair, if she would only go on.

"But, dear friends," said she, "how can I teach school in all three rooms when I can not even walk from one room to another?"

"O schoolma'am! if you will only consent to stay and live with us as you have been doing we will all be so good that you won't need to walk from one room to another."

They kept their promise—at least they kept it so well that the school was continued in this way until she began to lose health from lack of exercise. But the cowboys were equal to this emergency. They procured a gentle pony for her, and a comfortable side-saddle, and outside of school hours she went around from house to house and paid visits, the people coming out to the pony to tell her how much she was needed, and that they could not have her go away.

Now, dear friends, I have given you only a part of that woman's talk on that Sunday evening. As she sat in our church, near the pastor's desk, before he had introduced her, I feel free to confess that I did not see any thing remarkable about her nor any thing particularly attractive. I could scarcely believe it possible that she was the talented woman of whom I had heard; but when she arose to speak, and her face was lighted by that Christlike spirit from within, then we began to understand the wonderful secret that had given her such success. It was the spirit of Christ that shone forth from every word and look that she gave us. Most of you, dear readers, have known something of such a town as I have described. May be some of you know places *now* where there are no schools or churches, and where there are children growing up like noxious weeds in a neglected garden. Many of you have seen the beneficial changes that have been brought about by schools and Christian churches. Let us consider the effect that shall go on down the ages as a result of this one mission teacher's work. At first she was paid no salary. If I am correctly informed, the Christian people of the State of Ohio paid her salary for several years. As the school progressed, however, the people of the town contributed more or less toward her support. One of the Mormon elders gave $100, even though her teaching was in direct opposition to his own creed. I hardly need tell you that the result of that work was the building of a church. After the Sunday-school was well

started she found pupils in her day school capable of taking classes; and one of these pupils, a young lady, has since risen to prominence. The beneficial results that went out to the world from that little school with its poor appliances and surroundings, who can measure them?

Very likely the incident I have given you is a remarkable one. I judge so from the fact that Miss Dox was afterward employed in *starting* schools in other localities. These schools were then handed over to some teacher who could do very well after things were set going, and then she was moved about from place to place. At present she is employed to solicit funds for the Whitman College, at Walla Walla, Wash., an institution in memory of Marcus Whitman, the founder of the great Northwest country.

And now, friends, as I close can you not unite with me in finding a world of beauty and truth in that little text, that *I* have never understood or appreciated before? "I am come that they might have life, and that they might have it more abundantly."

Health Notes.

SANITARY ARRANGEMENTS OF THE HOME.

This matter has been pretty thoroughly discussed through our agricultural and home papers, in regard to out-buildings for the average country or village home; and perhaps the best arrangement, generally speaking, is the dry-dust closet or some of its modifications. Many people, however, are having this out-building connected with the wood-house or back kitchen so that the children and women are not obliged to go outdoors in winter and during stormy weather, to get to the closet; and where the average man wants to economize his time as much as possible, it is quite desirable that the closet should be so he can go out without putting on rubbers and overcoat, or run the risk of taking cold by going out without protection. All these things are being carefully studied and experimented on. The dry-dust arrangement requires a good deal of care, and it is a rather hard matter to find anybody who wants the job of keeping it in good running order, even if well paid for so doing. Some sort of *automatic* arrangement seems desirable. In towns and cities the simplest and safest thing is, without doubt, the water-closet. These can usually be put in at small expense wherever there is village waterworks; and of late many people are deciding that it pays to have cheap waterworks of their own. A windmill and elevated tank does the business perfectly; and where there are not too many people residing under one roof, a tank in the attic, in which the cistern water runs from the roof, answers every purpose. Your building must be strong enough to hold the tank or cistern safely, even when full of water, and the outlet must be so constructed that, when the tank is full, the water will go off through the conductors just as if there were no tank, and go down below into the underground cistern. This arrangement must be so that there is no possibility of its freezing up in winter so as to flood the rooms below. In fact, the tank in the attic should stand inside of a shallow pan made of galvanized iron, so that, if it ever runs over, this pan will catch the water and carry it safely outside of the building. Ernest, Mr. Calvert, and myself all have such tanks in the attics of our respective homes. I hardly need to suggest to you how much it is worth to have rain water or soft water so that the mother is not obliged to even work a pump-handle. Just turn a faucet and you have water to fill the reservoir, tubs, wash boilers, bath-tub, or any thing else.

Speaking of the bath-tub reminds me that you can easily have both hot and cold water by having a pipe leading from the attic to the reservoir on the cook-stove, or, if you have a furnace in the cellar, have a coil of pipe in the furnace. With the latter arrangement you can have hot-water *radiators* in your home. But just now we are going to discuss the water-closet only.

At different times in these pages I have spoken of a plan for disposing of slops and sewage, and I will repeat it briefly. Every home or every house should be raised up sufficiently so that, when properly graded, the ground will descend as you go away from the house. If you can not have this arrangement on *all* sides, have it at least on *one* side. If you have an orchard, say a hundred feet away from the house, on a little slope of ground, you are lucky. Now you want to lay some large tiling from the house clear down through the orchard.* The length of this line of tiling depends upon the number of people in your home. It had better be at least a hundred feet long. At the lower end, down in the orchard, lay the largest tile you can get in your neighborhood—say 8, 10, or 12 inch—the latter size if your family is large. Get the cheapest kind of cull tile. Those warped or fire-cracked in burning are just what you want. Lay this further end of large tiles down in the ground two or three feet deep; then take them on a gradual incline up to the house. As you get near the building, use smaller tile until you get down to, say, four-inch. When you get within a rod or two of the building, in place of the tile use sewer-pipe, and have the joints cemented. This four-inch sewer pipe is to be connected with your water-closet; but before you take it into the house, put in a piece with a branch, or what is called a T, and from this T run a tin or galvanized-iron pipe clear up above the eaves of your house. This is the outside ventilator, and must never be omitted. It takes all the sewer-gas clear up above the building, and no fermentation in the hottest weather can ever produce any pressure so as to force the gas into the house while this ventilating-pipe is securely attached to the highest end of your sewage-tiling. The apparatus for flushing the closet with the earthenware bowl, etc., can be purchased in any of our large cities at an expense of from $5 00 to $10.00—say $15.00 for something very elaborate and handsome.

Now, just one thing more comes within the province of my talk on this subject; and it is,

*I have directed that this large tiling with loose open joints shall go down through your orchard in order that the roots of the apple-trees may go through into the tiles to help themselves, not only to the water which comes down every day, but to use up the other fertilizing matter as well. In the course of time I presume that even these large-sized tiles will become filled with the accumulation of solid matter. But even if it does you can afford to do one of three things: Lay a new line of tile between two other rows of apple-trees, or, second, take up the old one, clean out the tiles, and put them back again. The third way is to extend the line of tile. Dig a trench below the open end, and by running in a very large quantity of water above you can easily wash out the whole contents into the trench below. Put some more tiles in the trench, fill it up, and it will run for another series of years. We have now used a similar arrangement for several years, and it works perfectly, and I have several times found great masses of roots filling these tiles when, for some reason or other, we had to dig up a portion of them. If you have not an orchard or apple-trees, by all means plan so as to raise crops (any sort of garden stuff) of some sort so as to utilize this valuable accumulation of fertility.

perhaps, the most important of all. With our modern water-closets you will find in the earthen bowl, just underneath the upper edge, a ventilating-tube made in the piece of earthenware. This ventilating-tube is about two inches in diameter. A tube of tin or galvanized iron is to be attached to this, and carried gradually upward until it can enter the chimney of your cook-stove, or any chimney where there is pretty sure to be fire most of the time. This will make draft or "pull" enough on this ventilating-tube to take every bit of foul air directly to the chimney before it can rise into the bath-room or whatever room your water-closet is located in. With the assistance of my young friend Harold, whom I have before mentioned, I have just finished putting two of these water-closets in our own home. One is in the bath-room, the other in the basement. You can tell when your ventilating pipes work all right by throwing a piece of burning paper into the closet. If the smoke from the paper rushes up through the ventilating tube, the closet is all right. Ours works so well that we have never noticed even the faintest smell, even while the apparatus is being used. Our bath-room is warmed by a coil of hot-water pipes so that, when any of the family have to get up in the night, they need not rush outdoors half-dressed, and stay out till they take cold; and when I am reading my evening papers in a warm room I do not need to hunt up fur cap, overcoat, and overshoes because it is rainy, snowy, or sleety outdoors. In fact, I can take my book or paper with me into the closet, and read there if I choose.

One thing more: Quite a few people, as I happen to know, are very much benefited in health by the use of hot-water injections. With the water-closet it is a very easy matter to make the bowels move thoroughly before you go to bed. Permit me to say that I used to be very much troubled with nightmare. If I did not have that I was often more or less disturbed in my sleep by a certain sort of uneasy feeling that is banished entirely if I use the hot-water enema thoroughly just before going to bed. I know some of you may say that, with these warm dwellings, water-closets, bath room, etc., we get to be feeble and effeminate, etc. I think this is a mistake. I have not had even a slight cold for almost a year. I keep from taking cold by being well clothed when outdoors during severe weather; and I take my outdoor exercise riding the wheel or by being engaged in some profitable outdoor business. Now, is not this very much better than going outdoors without wrapping because of being in a hurry? Permit me to say that Mrs. Root and I prefer a cold sleeping-room. In fact, four windows are raised more or less almost every night in the year. These four windows and one door, which opens into another room, furnish us ventilation for our sleeping-room.

A DOCTOR ADVISES ABOUT EATING, ETC.

Friend Root:—As I am about your own age, 56 years past, and having been a dyspeptic, I will venture a little advice in regard to diet, etc. Eat slowly and masticate thoroughly. Never bolt your food. Do not confine yourself too long to one or two articles of diet. Eat substantial food, thoroughly cooked, and always enough to furnish strength for six hours. The stomach needs rest as well as brain and muscle. Never drink after meals short of four or five hours, if possible to avoid it. Better suffer a little for water than to spew. Let your drinking be a short time before and very little during meals, never after you are through, as diluted gastric juice does not readily dissolve the ingesta; and if digestion is much delayed, fermentation is sure to set in. Remember your milk toast. Thorough mastication and insalivation is very important to a dyspeptic. The saliva, being alkaline, prevents fermentation until neutralized by the gastric acid. If you dilute the gastric juice by after-drinking, the ingested substance will float (so to speak) in the superabundant liquid, thus readily bringing the gastric acid in contact with the salivary alkali, thereby prematurely neutralizing it. The gastric juice acts only on the outside of the mass of food, dissolving the external portions, neutralizing the alkali as it slowly penetrates and dissolves away the portion next to the walls of the stomach. The salivary fluid, being uniformly mixed through the mass, prevents fermentation until digestion is completed. The acids of digestion are not the acid of dyspeptic fermentation; and, although there may be an abundance of gastric juice secreted to perfect digestion, if it is too much diluted with other liquid it will not fulfill its purpose; then woe betide the dyspeptic!

When pyrosis follows eating, and the eructated or vomited fluid is acid, a browned soda cracker or two should be eaten without any fluid, which will usually allay the vomiting and burning sensation in the stomach. Sometimes the stomach rejects the superabundant fluid with more or less of the more solid ingesta before fermentation has time to supervene, causing little or no pain or sickish feeling.

Recapitulation: Eat slowly plain substantial food, chewing it thoroughly. If a person eats slowly, and chews his food thoroughly, he will not often eat more than his stomach will digest, unless he eats to please his eyes or fancy and not his appetite. Avoid much liquid during meals, and none after eating, for four or five hours. Avoid much pastries. *Praise God;* forget yourself, and be happy.

Dove, Cal., Nov. 7. E. S. ARWINE.

I quite agree with you, friend A., unless it is in the matter of waiting so long after meals before taking any liquid. Dr. Salisbury (and my own experience) seems to indicate that hot water or other liquid should be taken about an hour and a half *before* a meal as well as two and a half and three hours *after*. If you put it four or five hours, you would force us on to the two-meal-a-day regimen as recommended and practiced by the Battle Creek people; and if I could have constant outdoor exercise I think I could do pretty well on two meals a day.

APPLE-TREE BORERS; WHAT SHALL WE DO WITH THEM?

Many remedies have been proposed in place of digging out the culprits with a wire, as I have recommended; and quite a few have felt sure that coal ashes, or ashes from wood heaped up around the base of the trunk, will keep the borers away. I hardly think this can be true, for we have taken coal ashes from our boilers ever since our orchard was planted, and put them around our fruit-trees, all the way from a shovelful to a wheelbarrow-load about each tree. As our coal ashes contain more or less wood ashes also, we have received some benefit from the potash in the latter; but so far as borers are concerned, I could not see that the ashes were any hindrance. So many have felt sure, however, that the ashes were of benefit, I thought best to submit the matter to Prof. Green, of our experiment station. Here is his reply:

Mr. Root:—I have not tried the remedy named in the letter which you sent me, but have known of its being tried. It is not a sure remedy, and some think it is of no value whatever. The eggs of the borers are laid just at the surface of the ground, and there is nothing about ashes of any kind to prevent the deposit of the eggs nor their hatching.

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If the ashes are heaped up around the trees the borers will simply enter higher up, and soil will have the same effect as ashes. I am quite sure that there is nothing in the remedy.

Wooster, O., Nov. 17. W. J. Green.

I may add that I have been carefully scanning our agricultural periodicals for several years back, and have also carefully noted what our great teachers in horticulture have to say in regard to the matter; but, if I am correct, there is at the present time nothing known that will kill the borers that will not at the same time endanger the life of the tree. The only thing that can be recommended is the laborious method of getting down on your knees and removing the soil from around the roots of the tree and digging out the offenders, with a sharp pointed knife and an assortment of slender wires. The reason why so many people make a mistake is along the line of faith in medicines for human ailments. All these troubles come by fits and starts. Sometimes they go away and stay away for years when you do not do any thing. Again, when every thing is favorable they will get a going and ruin your orchard almost in spite of every thing you can do. I presume the fruit-growers of the world could afford to pay thousands of dollars for some easier and cheaper way than digging the borers out, if such a way could be found.

MILLS' EARLIEST IN THE WORLD TOMATO.

Our good friend Greiner, after referring to what I said about this tomato on page 655, Sept. 1, writes in *Farm and Fireside* as follows:

Now, a year or two ago I tried this Mill's wonder (with Fordhook and a large number of others) and failed to find any thing remarkable about it. Possibly I was disgusted with it from the very start by the extravagant claims made for its earliness; besides, I had only a few plants, simply because I lacked faith from the beginning. After this experience, however, I would have taken Mr. Root's words, with a large dose of salt, if I had not just received an indorsement from an unexpected quarter. A brother of mine writes me that he has grown this Earliest in the World tomato this season, and finds it so good that he advises me to throw all others away. A neighbor also has had it for three years, and this year has a fine patch of plants, all trained to single stalk on stake, and doing remarkably well. While I am not going to abandon all other varieties for this new phenomenon, I think I shall have to give it another and more thorough trial. If it proves all that these men now say it is, we will even forgive Mr. Mills for having burdened his new tomato with a name long enough and heavy enough to drag it down. We shall call it simply Mills.

A few days ago we were favored with a visit from two of the members of the Lakeshore Canning Co., Conneaut, O. They were in search of a small-sized good shaped tomato that could be canned whole. I told them that Mill's Earliest would fill the bill exactly. The tomatoes never grow very large, but they are, with scarcely an exception, of beautiful shape, and perfectly smooth, and they are produced in enormous quantities. Were it not for its small size I should call it one of the most productive we have. One thing that surprised me was that, although we must have had 30 or 40 plants, there seemed to be no sporting. Each plant produced great numbers of beautiful tomatoes, just like its neighbor, all of a size, and all exactly alike.

HOW TO PLANT STRAWBERRIES AT ANY TIME DURING THE FALL AND WINTER WHEN THE GROUND IS NOT FROZEN, AND HAVE THEM LIVE.

A. I. R. says in Gardening for November, you can also set out strawberry-plants, etc. Will he please give "the trick" in next issue?

North Middletown, Ky. A. Dettwiller.

Friend D., this, like a great many other things, must be learned, even after you have been told how it may be done. A strawberry-plant in our climate can not very well take root in new soil in the month of November or later; therefore we must take a lump of dirt with the plant. Do this with any of the transplanters I have described. Put them in good rich soil; and if there should be enough warm weather so they make some growth they will probably stand all right. If this warm weather does not occur, the ground must be thoroughly mulched. Besides this mulching, as freezing weather comes on, enough loose straw should be put over the plants themselves so you can just get a glimpse of the foliage down through the straw. When this is properly done there is not very much danger of the frost throwing them out. This mulching must be gradually taken off in the spring. If a severe spell should occur so as to freeze the ground hard after your mulching has been partly removed, it may be necessary to put it back again. Let me add that, when the plant is taken up with the transplanter, the ground should be most thoroughly soaked after it is put where it is to grow. With the bottomless tin tubes I have described so many times, we are obliged to soak the ball of earth around the plant until it is *soft mud*, in order to have it slip out of the tube. This thorough soaking seems to insure the plant a successful catch to the new soil. In fact, the plants won't take hold so late in the fall without it. Try a few plants first. When you have succeeded, try a few more. Some varieties of strawberries are much easier to succeed with than others. Our late plantings of the new Marshall, for instance, have been almost all failures. Where you are growing strawberries under glass, of course mulching will not be needed; and you can put them out and make them grow at any time in the winter when the weather is mild enough to remove the sashes and work in the open air.

FRAUDS IN SMALL FRUITS.

I think Gleanings to me is worth all it costs, in exposing frauds, to say nothing of all the valuable information on apiculture. In reading about the Rocky Mountain cherry, from the description I think it only the wild sand cherry growing here in the sand hills of Nebraska. Some eat them, but they are too bitter for any use for me. The Crandall tree currant is only the wild black currant growing in the canyon here, very little better than the cherry—another fake to deceive people. "The Buffalo berry" is *some* better; but you can get thousands growing on the north side of the bluffs. All of the above trees and shrubs are "blowed up" just to deceive the people and get their money. I think the law of the United States should be that all fruits of new origin should be registered.

Very few bee-keepers in my neighborhood, and they manage poorly, hence say poor seasons. I started with 3 colonies, have increased to 12, and think about 30 lbs. surplus. Have run for increase only. This I think would be a fair season.

Miller, Neb. P. L. Anderson.

FROM THE MICHIGAN POTATO REGIONS.

Potatoes are selling from 11 to 13 cts. here now; but I was lucky enough to get from 17 to 25 cts. for 1050 bushels. The rest I have in the cellar. There are hundreds of carloads in this country, as potatoes and "bagas" are a great crop here, and we have good potato land, mostly sand. We have 400 bushels of Rural New-Yorkers; they are fine. The rest are Green Mountain. J. J. Thurstin.

Orion, Mich., Nov. 7.

30 LBS. OF POTATOES FROM 1 LB. PLANTED, SECOND-CROP THOROUGHBRED IN MICHIGAN.

Friend A. I. Root:—I got one pound of Maule's Thoroughbred potatoes (second crop) of you in June. I exposed them to the sun 8 days. They

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turned green, and most of the eyes began to sprout. I planted them the 18th of June. Several hills were up the 1st of July. I think all were up by the 10th, excepting three hills. Two of them came up later, but did not amount to any thing. I planted 23 hills; harvested 20 hills, and got 30 lbs. of potatoes; nice ones. D. I. WAGAR.
Flat Rock, Mich., Nov. 11.

SECOND-CROP THOROUGHBREDS.

My second-crop Thoroughbred potatoes came up, 38 out of 43 eyes, about as soon as spring-planted potatoes. I think a good many make the mistake of planting too deep. Plant shallow, and see that they don't dry out. Mine were planted June 11th; and for the chance they had they have done finely. Keep up your Home Talks. S. R. AUSTIN.
Amityville, N. Y.

THE PEABODY YAMS.

I read in GLEANINGS last spring about the Peabody yam, and I sent and got a few plants. I have potatoes now that weigh 8 lbs. Can you do better than that in Ohio? ALBERT B. YOUNG.
Riverhead, L. I., Oct. 19.

OUR LAST DAYS OUR BEST, EVEN IF WE DO HAVE POOR SEASONS AND LOW PRICES.

Bro. Root:—I have been looking for the journal for some ten days, but it does not come. I sent you $2 00 last fall, and received two journals and a pound of potatoes, Maule's Thoroughbreds, from which I raised 57 lbs.; but, oh dear! not a dollar from 60 stands of bees, and I have now fed them 700 lbs. of granulated sugar, and three starved before I began to feed. Don't stop the journal because you don't get the dollar, because I want it, and you can wait till next summer for your pay if you can't get it before. Bees were in fine order the last of May, and were starving in June, and continued to starve all summer, so you see it makes me feel poor. But we live in hopes of better times another year, as the clover looks well this fall, and plenty of it. We depend on honey for our bread and butter. We are old people. I am 84—born in 1812—so you see we can't work much more. But I can go to prayer-meeting, and have a good talk with the people. But I guess we shall not go to the poorhouse this winter as long as we can get potatoes and salt, of which we have plenty, and try to live near the Savior; so our last days will be our best
Albion, Mich., Nov. 10. A. GRIFFER.

A GOOD REPORT FOR THE EARLY OHIOS AS WELL AS FOR THE THOROUGHBREDS.

I note with pleasure what you have to say, in last GLEANINGS, about my potato crop; but you have got things mixed somewhat, or perhaps it is myself. At any rate, I meant Ohios when I said I had dug 711 bushels from 1½ acres. I had only one barrel of Thoroughbreds, and from it I grew only 150 bushels, of which you received the greater part. I think this will agree with what I have been writing on all along, will it not?

I planted the barrel of Thoroughbred seed all in ten rows. The rows were 35 rods long and 3 feet apart, so you see I was not very much ahead of Mr. Terry after all. Now in regard to whether the ground was manured the year before or not, I may say that no manure had ever been applied *at any time*. The ground was broken up last summer (I mean '95) for the first time, and sown to buckwheat. This crop of buckwheat shaded the ground and helped materially to rot the tough heavy sod which all this new land has at first. It also choked out all weeds so that it was in good shape for a crop of potatoes the following season.

I have a similar piece of about three acres, which I have cleared with my own hands this summer, and I want to do even better with it if possible. At any rate I shall spare no pains in the matter.
Sanilac Center, Mich., Nov. 3. W. J. MANLEY.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

SHELLBARK HICKORYNUTS.

These are not so plentiful as last year, and the price is higher. We can, however, furnish small quantities at 35 cts. a peck, or $1.25 a bushel.

NUTS OF THE BLACKWALNUT.

These are so plentiful in our locality that we can offer them already hulled at the low price of 15 cts. a peck, or 50 cts. a bushel. If any of the friends who are ordering goods of us would like to have some of these included with their other goods we shall be glad to accommodate them while our supply lasts.

THOROUGHBREDS FOR PREMIUMS.

Remember, 1 lb. of Thoroughbreds will be given for every subscription to GLEANINGS provided you do not ask for any other premium; and this will apply to paying up old dues or subscribing for the future—that is, a pound of Thoroughbreds for every dollar sent. But you must pay 9 cts. for postage and packing; and to every present subscriber who sends us a dollar with a new name, that is, for introducing GLEANINGS into a new family or neighborhood, we will allow him a peck of Thoroughbreds worth $1.40, or ¼ bushel of *seconds* worth $1.00.

OTHER POTATOES AS PREMIUMS.

You can select any other kind of potatoes from the table, reckoning 25 cents' worth of potatoes for every dollar sent us for GLEANINGS, or 50 cents' worth of potatoes for every dollar sent for a new subscriber, as explained above.

VEGETABLE-FORCING.

This is the title of a new book by H. G. Winkler, of Hanging Rock, O. It is the first book we have ever had on the matter of growing vegetables under glass, so far as I am aware; and as soon as I saw it advertised I felt that there was abundant need of just such a book. The work contains 157 pages, bound in cloth; price $1.00 It has many valuable hints and suggestions; but, unfortunately, a great part of it, if not the most important part of it, is copied from Peter Henderson, from reports of various experiment stations, and from other sources. Again, there is not a single cut or illustration in the book, from beginning to end. The print is very coarse, and there is a good deal of waste paper at the end of the chapters and other places. Besides, the book is full of bad spelling and typographical errors. In fact, some of it is unintelligible unless the reader is sufficiently acquainted with the subject to know what word was meant in place of the one printed in the book. I am sorry to find fault with a work on a subject so much needed. If the book were put in paper covers, and sold for 25 cents, I should consider it a very good thing; but with the present prices that market-gardeners get for their stuff, $1.00 ought to pay for a good-sized book full of illustrations from practical work, and at least the greater part of it *original*. In going through the book I found just one single sentence to indicate that the author himself was a practical gardener, and had a greenhouse or greenhouses of his own at Hanging Rock, Lawrence Co., O. To those who have little or no knowledge of vegetable forcing, and who are unacquainted with the books and periodicals in regard to this line of work, the book may well be worth a dollar. If you want it, write to friend Winkler as above.

DECLINE IN PRICES OF GARDEN AND OTHER SEEDS.

We have thought best to note below some of the changes that will be made in prices from our seed catalog which many of you may have in your possession the coming year. Instead of as it is in the catalog, read:

Kidney Wax bean—Qt., 10 cts.; peck, 60.

Davis Wax bean (new)—Pint, 10 cts.; qt., 18; peck, $1.00.

Best of All beans.—Qt., 5 cts.; peck, 40; bushel, $1.25.

York State Marrow beans.—Qt., 8 cts.; peck, 50; bushel, $1.50.

Navy beans.—Qt., 5 cts.; peck, 35; bushel, $1.25.

Sweet corn, either Corey, Stowell's Evergreen, Ford's Early Sweet, Mammoth, County Gentleman, —Qt., 8 cts.; peck, 50; bushel, $1 50.

Grand Rapids lettuce seed.—Ounce, 10 cts.; 1 lb., $1 00.

Henderson's New York lettuce.—Ounce, 10 cts.; 1 lb., $1.00.

Onion-sets.—Best yellow—a very nice lot—Qt., 15 cts.; peck, 60; bushel, $2.00.

Whittaker onion-sets.—Qt., 18 cts.; peck, $1.25; bushel, $4.00.

Full sized Whittaker onions (just right to plant

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out to produce sets).—Qt., 10 cts.; peck, 75; bushel, $2.50. This Whittaker onion, be it remembered, is an improved exceedingly hardy variety of the potato onion

White Multiplier.—Same price as the Whittaker.

White Prizetaker (new) sets, same prices as above

Alaska peas.—The standard extra early pea.—Qt., 10 cts.; peck, 75; bushel, $2.50.

Hubbard squash seed.—Ounce, 5 cts.; 1 lb., 30; 5 lbs., $1.25.

Mills' Earliest in the World tomato—see description on page 807—Packet, 5 cts.; ¼ ounce, 15; ounce, 50 The seed is of our own growing.

Sweet clover.—1 lb., 10 cts.; 10 or more lbs., 6 cts. per lb.; 100 lbs. at 5 cts. per lb

Japanese buckwheat.—Pound, 5 cts; peck, 20; ½ bushel, 35; bushel, 60; 2 bushel bag, $1.00; 10 or more bushels, purchaser paying for bags, 45 cts. per bushel.

Be sure to add (on all the above) 10 cts. per lb. for postage and packing if ordered by mail.

Buckwheat flour.—10 lbs., 25 cts.; sack of 125 lbs., *only 2 cts. per lb.*, sack included.

THE BATTLE CREEK HEALTH FOODS.

Please bear in mind, friends, that we still have free samples of the above to give away. Simply mention when you are ordering goods by freight or express, and we will put in a package without charge. If you want them by mail you will have to send 10 cts. for postage.

POTATOES ORDERED DURING THE WINTER MONTHS.

We shall continue to do this winter as we have done before. All potatoes ordered during the winter months will be packed up, labeled, and carefully housed in our frost-proof cellars until time for shipping. The advantage of ordering early is that you will get them before they are sold out, or before there is an advance in price We succeeded so well in shipping potatoes south last winter that we will fill all orders at our own risk to points in the south; that is, if we *conclude to take the risk*, depending on weather and locality, we will stand the loss of their freezing. This we do in order to assist those who want to plant earlier than the first of April. We will, however, do our very best to ship potatoes in the winter time to all points, but we can not take the risk ourselves unless the shipment can be made to go speedily into the more southern clime. By coating the barrels with heavy paper, and packing in sawdust, we can *usually* succeed at any time during the winter.

If our prices are not as low as those of other responsible dealers we will make them so. And even after you have bought your potatoes and paid for them, if it should turn out that you have paid more than you would have done by buying elsewhere, we will make the price right when apprised of the fact.

For our circular giving special prices on seed potatoes for the coming season, giving also a description of most of the different potatoes now before the potato-growing world, make application by postal.

THE RURAL PRESS OF THE UNITED STATES.

No one who reads our agricultural papers can help admiring and respecting the high moral standard of at least the greater part of them; in fact, if our religious papers were half as particular in regard to the character of the advertisements they accept I would thank God again and again from the bottom of my heart.

Foremost in the ranks of these grand family papers stands the *Rural New-Yorker*. May God give its editors grace and wisdom, as he has done, to continue their heavy blows against all forms of iniquity; and may our people stand by them, not only with kind words of encouragement, but with financial support as well. It has been an unceasing wonder to me, as number after number is laid on my desk, to see how they could give us so much every week for only a dollar a year.

Now, the *Rural New-Yorker* does not cover the whole field, by any means. The *Ohio Farmer*, of Cleveland, is doing for agriculture many things that the *Rural* does not reach or only touches upon.

The *Country Gentleman*, of Albany, still holds its own, and makes the world acknowledge that we have in this land of ours a vast army of *country gentlemen* who are, in point of education, intelligence, and morals, the peers of any class of people in this whole wide earth. Long live the *Country Gentleman* and the class it represents.

And, once more, we have the *American Agriculturist*, adapted, at least in a measure, to north, east, south, and west, with its varied items on agriculture and agricultural news. For some years we feared the work that Orange Judd so well started might not hold up after God called him home; but it seems now to have got down to excellent work.

And then, again, there is the *Practical Farmer*, containing T. B. Terry's exceedingly practical home talks every week; in fact, many of them might be called sermons. Terry has shown himself so much a friend of the home, and a friend of the *wife* and *children* in the home, he is now constantly employed every winter in talking and teaching at our farmers' institutes throughout the different States in our land. Besides Terry's articles, which are well worth the subscription price over and over again, he is backed up by quite an array of other good writers along in the same lines. Greiner's talks on gardening, and the illustrated short cuts for economizing labor, are also an important feature of the *Practical Farmer*.

And then, again, there is that bright, spicy, boiled-down Philadelphia *Farm Journal*. It is peculiar among the whole lot—in fact, it is almost the only periodical—that teaches only by short, brief, bright sentences. Its illustrations are in keeping with the rest of the journal; in fact, this clean, breezy little sheet has started almost a new era in rural journalism. The price is so exceedingly low that one has to smile when he thinks of the great number of valuable hints he gets for such an insignificant sum of money.

There are many others I might mention on gardening, horticulture, and kindred subjects. But what started me on this subject this morning was the fact that we are enabled to give for 1897 lower prices, clubbed with GLEANINGS, than ever before—at least on most of them (see page 875). Briefly:

The Rural New-Yorker and GLEANINGS together are only $1.75; *Ohio Farmer* and our own journal, only $1.50; *Country Gentleman* and GLEANINGS, $2.00; *Practical Farmer* and this journal, $1.60; *Farm Journal* and GLEANINGS, $1.10; *American Agriculturist* with GLEANINGS, only $1.25. I am so anxious to have our readers see copies of the above, that, if you will just mention on a postal card that you would like to receive them, we will ask the publishers to mail them to you. Of course, it will be a little more direct for you to write to the publishers themselves; but if that is too much trouble, just write to us.

Besides these low rates on all subscriptions where GLEANINGS is clubbed with any of the above papers we will include the potato premiums as mentioned on page 871 if you will send the money to pay the postage, or have them sent with other goods by freight or express as you choose.

TRAVELS ON THE WHEEL ACROSS THE DESERTS OF ARIZONA TO BE COMMENCED IN OUR NEXT ISSUE.

I believe we have never been in the habit of telling what we are *going* to do for our readers beforehand; but it occurs to me just now that it may be well to state that the writer, A. I. Root, commences to morrow, Dec. 1, a trip to Arizona. He expects to attend the National Irrigation Congress that meets at Phœnix, Arizona, December 15th, 16th, and 17th, and also expects to visit the fruit-growers' farms and gardens where irrigation is practiced in that neighborhood. He will also take a trip to the summit of Superstitious Mountain, for description of which see GLEANINGS for Oct. 15, 1892, page 775. He is also planning a bicycle-trip to the far-famed Grand Canyon of the Colorado. This canyon is supposed to have been produced by a fissure or crack in the earth while it was cooling. Colorado River runs through the bottom of this fissure. At some points along the canyon there are said to be precipices about a mile *straight down*. You can drop a stone down, and see it make its descent in a few seconds; but to climb down this on a wagon road takes a trip of *14 miles*. I do not suppose I shall succeed in riding down this trail on my wheel; but if you subscribe for GLEANINGS you will know how it turns out; and I am going to find out all I can about this matter of irrigation, not only in Arizona but everywhere else. For the next month, all letters that are expressly for A. I. Root had better be addressed to him at Tempe, Arizona, care of J. H. Root, brother of the writer.

Please notice that all new subscribers for 1897 will receive the December numbers free of charge.

EARLY-ORDER DISCOUNTS.

The time is up when customers may take advantage of the largest early order discount For this month we give 4 per cent discount on orders for bee-keepers' supplies for next season's use. We have been getting a number of good-sized orders the past month from those who have faith in the future and the means to take advantage of the early-order discount, which is given only for cash with order.

BEESWAX MARKET.

The market for beeswax remains unchanged; if any thing it is a little easier. We have decided, however, to make only 2 cts. per lb. difference between cash and trade price instead of 3 as formerly. From now on till further notice we will pay 25 cents cash, 27 in trade, for average wax delivered here. We desire to secure all the wax we can direct from producers. We can not get too much, as we have a very large and increasing outlet for it.

HONEY WANTED.

We have handled quite a little honey so far this season. Most of it, however, we have not seen, as it has gone direct from producer to our customer, thus saving one freight charge. A good deal of honey has been moving; and while prices have ruled rather low there seems to be a tendency to hold up prices, which is encouraging. At present we haven't much available honey in view, and should be glad to hear from those who have choice honey (either comb or extracted) for sale or exchange for supplies.

BUSINESS OUTLOOK.

We are at present running our factory nine hours a day, about all the daylight available, and a little more. We are running principally on orders of which we have a good supply on hand and in prospect. Owing to the generally fair crop of honey the past season bee-keepers are hopeful for the year to come. With higher prices for wheat and other farm products, and a general business revival giving employment to the unemployed, there is every reason to be grateful and to look forward with hope, and to show our faith by our works.

Labels, Honey Jars, Shipping Cases, Cartons, and a Full Line of SUPPLIES.

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WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.

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Extracted Honey. Finest Quality.

Two 60-lb. cans, boxed, 7c per lb. One 60-lb. can, boxed, 8c per lb. Sample by mail, 10c. Pouder's Honey Jars and complete line of supplies. Catalog free.

WALTER S. POUDER,
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CALIFORNIA. Mountain bee ranch for sale. Good location; telephone connection with three railroad stations.
D. O. BAILIFF, Banning, Cal.

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Offers $790.00 in Cash Prizes. The lowest possible clubbing rates on all papers and magazines. Catalog free. Write us and save money.
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Box 12. Shamrock, N. Y.
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Yell, O Yell, O'YELLOWZONES
YELLOWZONES for PAIN and FEVER.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must say you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To buy a car lot of fancy and No. 1 white comb honey, at prices to suit the times.
B. WALKER, Evart, Mich.

WANTED.—To exchange the best apiary and supply business in New Mexico; also a 26-acre fruit farm, 6-room house, and out-buildings, near agricultural college and public school, for city property in the east, or offers.
MCCLURE BROTHERS, New Concord, O

WANTED.—To exchange empty combs, L. size, for terrier, or bull terrier pup.
F. W. HUMPHREY, Oronoque, Conn.

WANTED.—To exchange thoroughbred poultry, seven leading varieties, for bee-supplies or offers. A. H. DUFF, Larned, Kansas.

WANTED.—To exchange one Root's make section-machine (in fine order) for band saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To exchange all kinds of machinery (iron) for a saw-mill, and wood working machinery. W. S. AMMON, Reading, Pa.

WANTED.—The address of any one having ferrets or wild geese to sell.
CHAS. MCCLAVE, New London, Ohio.

WANTED.—To exchange a pocket camera for beeswax; cost $3.75. A. I. ROOT CO., Medina, O.

WANTED.—To exchange two fine St. Bernard dogs, one fine bird dog, well bred and well broke, and some fine little pug pups, for something useful. W. S. BRILLHART, Millwood, Knox Co., O.

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Fruit and Ornamental Trees, Shrubs, Plants, Roses, Vines, Bulbs, Seeds.

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is about the actual worth of our new book on Incubation and Poultry. Contains a full and complete description of the **Reliable Incubator** & the Brooder of same name, together with cuts and instructions for build'g poultry houses and much of interest and great value to the poultryman. Sent on rec'pt of 10c.

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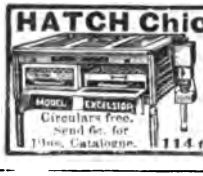

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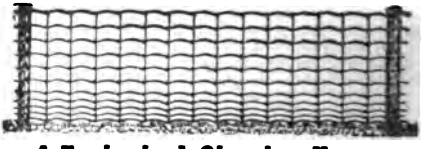

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When more convenient, orders for Barnes' Foot-Power Machinery may be sent to THE A. I. ROOT CO., Medina, O

Yell, O Yell, O'YELLOWZONES. YELLOWZONES for PAIN and FEVER.

VOL XXIV DECEMBER 15, 1896. NO. 24.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS

The A. I. ROOT CO.
MEDINA · OHIO ·

MURRAY-HEISS CLEVELAND O

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Book List.

Postage.] [Price without postage.

10 | **Garden** and Farm Topics, Henderson** 75
| **Gray's** School and Field Book of Botany ... 1 80
5 | **Gregory** on Cabbages; paper* 25
5 | **Gregory** on Squashes; paper* 25
5 | **Gregory** on Onions; paper* 25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

15 | **How** to Make the Garden Pay.** 1 35

By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book.

| **Handbook** for Lumbermen 05
10 | **Household** Conveniences 1 40
2 | **How** to Propagate and Grow Fruit, Green* 15
10 | **How** to Get Well and Keep Well 90

An exposition of the Salisbury system of curing disease by the "lean mean diet."

2 | **Injurious** Insects, Cook 10
10 | **Irrigation** for the Farm, Garden, and Orchard, Stewart* 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 126 cuts.

8 | **Maple** Sugar and the Sugar-bush** 35

By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

7 | **Market**-gardening and Farm Notes, by Burnett Landreth 90

The Landreths are the pioneer seedsmen of America, and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells what has been done and what is BEING done, more than it discourses on theory.

4 | **Peabody's** Webster's Dictionary 10

Over 30,000 words and 250 illustrations.

5 | **Manures; How to Make and How to Use them; in paper covers** 45
6 | **The same in cloth covers** 65

Covering the whole matter, and discussing every thing to be found on the farm, refuse from factories, mineral fertilizers from mines, etc. It is a complete summing-up of the whole matter. It is written by F. W. Sempers.

3 | **Onions for Profit**** 45

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterize its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| **Our Farming, by T. B. Terry**** $2.00

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming before the world at the present day. The price is $2.00 postpaid; or clubbed with GLEANINGS for 2.50. Those who are already subscribers to GLEANINGS may have it postpaid by sending us 1.50 more. We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | **Poultry for Pleasure and Profit**** 10
1 | **Practical Floriculture, Henderson*** 1 35
10 | **Profits in Poultry*** 90
2 | **Practical Turkey-raising** 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | **Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character** 15

This little book ought to be worth dollars instead of the few cents it costs to any one who has ever been troubled with these pests, and who has not? It is written in such a happy vein that every member of the family will read it clear through, just about as soon as they get hold of it. It contains a complete summing up of the best information the world can furnish.

1 | **Silk and the Silkworm** 10
10 | **Small-Fruit Culturist, Fuller** 1 40
10 | **Success in Market-Gardening*** 90

This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

| **Ten Acres Enough** 1 00
| **Talks on Manures*** 1 75

This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 | **The Carpenter's Steel Square and its Uses.** 15
10 | **The New Agriculture; or, the Waters Led Captive** 40
2 | **Treatise on the Horse and his Diseases** 10
5 | **Tile Drainage, by W. I. Chamberlain** 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as

| **Tomato Culture** 35

In three parts. Part first—by J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second—By D Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general. This little book is interesting because it is one of the first rural books to come from our friends in the South.

3 | **Winter Care of Horses and Cattle** 35

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 48 pages and 4 cuts.

3 | **Wood's Common Objects of the Microscope**** 47
8 | **What to Do and How to be Happy While Doing It, by A. I. Root** 50

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CASH FOR BEESWAX

Will pay 25c per lb. cash, or 27c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by *express*.

THE A. I. ROOT CO., Medina, O.

DURPEE SEEDS

BURPEE'S FARM ANNUAL for 1897
The Leading American Seed Catalogue
mailed FREE to any address.
W. ATLEE BURPEE & CO., - PHILADELPHIA.

Honey Column.

CITY MARKETS.

CLEVELAND. — *Honey.* — Fancy white, 12½@13½; No. 1 white, 11@12; extracted, white, 6@7; amber, 5@6; dark, 4@4½; beeswax, 25@28. Comb honey moving slow. Extracted good demand and scarce.
WILLIAMS BROS.,
Dec. 8. 80 & 82 Broadway, Cleveland, O.

ALBANY. — *Honey.* — Fancy white, 12@13; No. 1 white, 11@12; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 7@7½; white extracted, 6@6½; amber, 5@6; dark, 4@5. Comb honey selling slowly and a big stock on our market. Extracted in fair demand, and white not plentiful.
CHAS. MCCULLOCH & CO.,
Dec. 8. Albany, N. Y.

CHICAGO.—*Honey.*—We quote an active demand for fancy white comb honey. Prices as to style of package—13@14; No. 1 white, 12@12½; amber 11; dark, 8@10; extracted, white, 6@7; amber, 5@6; dark, 4½@5; beeswax, 26. Liberal advances on consignments, or will pay cash. S. T. FISH & CO.,
Dec. 9. 189 South Water St., Chicago, Ill.

BUFFALO.—*Honey.*—Fancy white, 11@12; No. 1, 10@11; fancy amber, 8@9; No. 1 amber, 8@8½; fancy dark, 7@8; No. 1 dark, 4@6; white extracted, 4½@5; amber, 3½@4; dark, 3@3½; beeswax, 24@28. Fancy and No. 1 moves fairly well but has occasionally to be shaded to move readily, while other grades require hard pushing and cutting to move, still can be thus sold. BATTERSON & CO.
Dec. 8. 167, 169 Scott St., Buffalo, N. Y.

CINCINNATI.—*Honey.*—No. 1 white, 12@14; No. 1 amber, 10@12; white extracted, 5@7; dark, 3½@4; amber, 4@6; beeswax, 20@25. Market dull.
CHAS F. MUTH & SON,
Dec. 8. Cincinnati, O

DENVER.—*Honey.*—Fancy white, 11; No. 1 white, 10; fancy amber, 9; No. 1 amber, 8; fancy dark, 7; white extracted, 5@6; beeswax, 25. The above are the best prices we can quote for the quality of honey on our market. Our market is full of granulated honey, and it keeps us busy to rid the stores of it and supply them with our neat and attractive packages. R. K. & J. C. FRISBEE,
Dec. 8. Denver, Col.

BOSTON.—*Honey.*—Fancy white, 13@14; No. 1, 11@12; white extracted, 7@8; amber, 5@6.
E. E. BLAKE & CO.,
Dec. 9. Boston, Mass.

MINNEAPOLIS. — *Honey.* — Fancy white, 11@12½; No. 1 white, 10@11; fancy amber, 9@10; No. 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 7@8; white extracted, 6@7; western amber ext. 5@5½; amber, 5@5½; dark, 4½@5; beeswax, 23@26. Extracted honey moving better than before, but comb continues in considerable supply, and weak at quotations. Our market offers an opening for domestic white and western amber extracted, and wax.
S. H. HALL & CO.,
Dec. 8. Minneapolis, Minn.

MILWAUKEE.—*Honey.*—Fancy white, 13@14; No. 1 white, 12@13; fancy amber, 10@11; No. 1 amber, 8@10; No. 1 dark, 8@10; white extracted, 6@7; amber, 5@6; dark, 4@5. Beeswax, 25@28. The supply of honey is equal to all demands at this time. The trade moves slow, and values fairly well sustained only when producers come into market and urge off their product at ruinous low values to realize cash and save commission The regular trade in regular way is willing to pay fair market values, according to quality and quantity. A. V. BISHOP & CO.,
Dec. 9. Milwaukee, Wis.

KANSAS CITY.—*Honey.*— No 1 white, 13@14; fancy amber, 12@13; No. 1 amber, 11@12; fancy dark, 10@11; No. 1 dark, 8@10; white extracted, 6@6½; amber, 4@5½; dark, 4@4½; beeswax, 22.
C. C. CLEMONS & CO.,
Dec. 9. 423 Walnut, Kansas City, Mo.

PHILADELPHIA.—*Honey.*—Fancy white, 13@14c; No. 1 white, 11@12; fancy amber, 9@10; No 1 amber, 8@9; fancy dark, 7@8; No. 1 dark, 7; white extracted, 6@7; amber, 5@6; dark, 4@5; beeswax, 27. Comb honey is much lower. Light weights have demoralized our market. It is hard to get over light-weight prices for full pounds. WM. A. SELSER,
Dec. 9. No. 10 Vine St., Philadelphia, Pa.

CHICAGO.—*Honey.*—Fancy white, 12@13; No. 1 white, 11; fancy amber, 10; No. 1 amber, 8@9; fancy dark, 8@9; No. 1 dark, 7@8; white extracted, 5@7; amber, 5@6; dark, 4¾; beeswax, 26@27 The offerings are large, and sales drag more than usual at this time of year. R. A. BURNETT & CO.,
Dec. 8. 163 So. Water St., Chicago, Ill.

DETROIT.— *Honey.* — No. 1 white, 12@13; fancy amber, 11@12; No. 1 amber, 10@11; fancy dark, 9@10; No. 1 dark, 9; white extracted, 5½@6; amber, 5; dark, 4@4½. Beeswax, 25@26. M. H. HUNT,
Dec. 10. Bell Branch, Mich.

COLUMBUS.—*Honey.*—Fancy white, 14; No. 1 white, 12@13; fancy amber, 10; fancy dark, 8@9.
THE COLUMBUS COM. & STORAGE CO.
Dec. 12. 409-413 N. High St., Columbus, O.

FOR SALE.—6000 lbs. basswood and white clover extracted honey, in 12-lb. cans, price 6½c per lb.; the lot at 6c. W. H. YOUNG, Ono, Wis.

FOR SALE.—Clover extracted honey, kegs, at 7c per lb. Buckwheat extracted honey, kegs, 5½c lb.; 60-lb. cans, 6c lb. Samples 5c.
I. J. STRINGHAM, 105 Park Place, New York.

Quantity lots of water-white extracted and gilt-edged comb honey constantly on hand at bottom prices. Safe arrival guaranteed.
B. WALKER, Evart, Mich.

FOR SALE.—2000 lbs. honey in 60-lb. cans at 6c and 8c f. o. b. cars here. Sample by mail.
R. H. BAILEY, Box 81,
Ausable Forks, Essex Co., N. Y.

FOR SALE.—A carload of white extracted honey from basswood and willow-herb in 30-gallon barrels and 60-lb. cans. Purity and safe arrival guaranteed. Price, 6½ cts.; in quantity, 6 cts.
FRANK MCNAY, Mauston, Wis.

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Nauvoo, Hancock Co., Ill.

FOR SALE.—15 boxes fine heartsease extracted honey. Price per lb., 6c. Also 14 boxes last season's honey at 5c a lb. Boxes have two 60-lb. cans each.
eitf JNO. A. THORNTON, Lima, Ill.

FOR SALE.—3480 lbs. fine ripe basswood and 2520 lbs. amber honey, new cans and cases, $420.00 for the lot. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—White Linn honey; A No. 1 in quality. 5½ cts. per lb. by the can or barrel.
J. B. MURRAY, Ada, Ohio.

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Prompt renewals are so desirable that I am going to make some special offers. For $1.00 I will send the *Bee-keepers' Review* for 1897, and the 50-cent book, "Advanced Bee Culture," or, in place of the book, 12 back numbers of the *Review*. For $1.50 I will send the *Review* and a fine tested Italian queen—queen to be sent early in the season of 1897. For $1.75, the *Review* and a $1.10 Bingham (Conqueror) smoker, postpaid. For $2.50, the *Review* and 1000 No. 1 first-class one-piece sections. But *remember* that these offers will be withdrawn Jan. 1, as the sole object in making them is to induce the sending in of subscriptions before that date. New subscribers will get the December number free. If not acquainted with the *Review*, send for samples.

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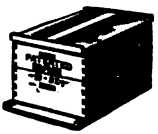

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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

Vol. XXIV. DEC. 15, 1896. No. 24.

STRAY STRAWS FROM DR. C. C. MILLER.

POSSIBLY we may find that sweet clover of the white sort is best in one place and the yellow in another.

ALFALFA, A. C. Tyrrel reluctantly admits in *Nebraska Bee keeper*, is of no value as a honey-plant at Madison, Neb.

BAKED BEANS usually have a little sugar or molasses put in them. Try honey instead, and see if it isn't an improvement.

CAUCASIAN QUEENS have been imported into England by H. W. Brice. They are very gentle, and the Russians say they are productive.

HONEY-GEMS. Flour, 196 lbs.; lard, 10 lbs.; honey, 7 galls.; molasses, 7 galls.; brown sugar, 15 lbs.; carbonate of soda, 3½ lbs.; salt, 1 lb.; water, 4 galls.; vanilla extract, 1 pt.

GREAT BRITAIN has tried postal savings banks for 25 years, and now has on deposit $337,000,000. Canada, after 5 years, has $26,000,000 at 3½ per cent interest. Isn't this country a little behind the times?

THE LIVES of some people will be lengthened by keeping bees in the cellar. Do you know why? They'll allow the cellar to be so foul that it isn't healthy to live over it; but if bees are cellared they'll clean up and whitewash the cellar.

PEAT, finely broken up, is recommended in *Revue Nationale* as an improvement on chaff for cushions on hives. It is a good absorbent of moisture, a disinfectant, and a poor conductor of heat. It is liked in Germany. [The material is probably good, but hardly available for this country.—ED.]

AN ARTICLE in a leading Chicago daily gravely explains the difference between bees in hives and those in trees, or "wild" bees. The wild bee is smaller, stronger, and fiercer than "his tamer brother;" each bee thrusts in his sting again and again without leaving it in the flesh, and the wild bee gathers from basswood a honey whose richness no home honey can approach!

THE ROYAL SHOW of 1897, which will be held at Manchester in June next, is now receiving attention in the *British Bee Journal*. Oughtn't we to begin to talk about the convention at Buffalo?

LEVELING a hive by the eye may do fairly well where the ground is level; but on a slope the eye can't be trusted. The side of the hive toward the slope will always look higher than it is. It pays well to use a spirit-level.

THE FRATERNITY in general will regret to learn that one of the veterans, H. D. Cutting, has partially lost his sight, and there is fear it may be entirely lost. [Mr. Cutting was formerly the very efficient secretary of the Michigan State Bee-keepers' Association. He had the reputation of being a very fine mechanic, and the loss of sight will be a sad blow. I sincerely hope the worst fears will not be realized.—ED.]

AN ADDED HAPPINESS will come to us who live in the country if free rural delivery of mail should come into general use. There seems a little prospect of it from the fact that the Post-office Department is now trying it on a little larger scale than in the time of Harrison. Wanamaker, a man with a clear business head, urged it. The present experiment gives daily collection and distribution of mail at farmhouses in a number of selected counties in different States.

"WILL UNFINISHED SECTIONS of full depth, when filled with honey the second time, and capped over, make first-class comb honey?" To this question in *American Bee Journal*, 4 say yes, 11 no, and 5 say, "Yes, if the comb is cut down." If the 4 have actually succeeded themselves, their testimony outweighs that of the 11 noes, just as the testimony of 4 witnesses who saw a man commit murder outweighed that of 11 who hadn't seen it. But some sections won't do without cutting down. [That is just it exactly. One or two who know all about what they are talking about ought to have a good deal more weight than ten or twelve times

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that number who do not know from experience. But I am rather of the opinion that the "four" referred to work on the plan of the "five" who level down the combs. From all the reports I have ever read, full-depth combs not leveled down do not make real first-class comb honey. —Ed.]

The Homestead, an excellent agricultural paper published at Des Moines, Iowa, says, in speaking of melilotus alba: "We know of no botanist who speaks of the plant for use in the Northwest who does not rank it as a weed." Possibly. So is a stalk of wheat a weed in a flower-garden. But when a man deliberately devotes a portion of ground to be occupied exclusively by wheat, the wheat of that field can hardly be called weeds. And when sweet clover is treated in the same way, as it is increasingly for its value as a forage plant, then it ceases to be a weed.

"There is but very little doubt that the function of the upper-head and thoracic glands is to furnish the ferment which will digest the nectar of the flowers, while the lower head glands secrete a digestive liquid which acts to digest the pollen. The fact that these lower-head glands are better developed in the young workers, and that the other glands attain their maximum development in the older bees, accords with what has been said above"—that young bees are better as nurses and old ones as field hands.—*Prof. Cook in American Bee Journal.*

Prof. Cook (*American Bee Journal*) thinks it almost certain that fruit-growers of Southern California will become bee-keepers so as to have fruit-blossoms fertilized, and thinks they should introduce the gentle Carniolans. If wanted only as fertilizers, then gentleness alone might rule; but you'll see, Professor, that every man of them will want the bee that gets the most honey. [But why Carniolans? We have had one or two colonies of this race that have been as gentle as the ordinary Italians, but no more so. The average of them have been rather more nervous. All my experience would lead me to believe that pure leather-colored Italians would *average* better than Carniolans.—Ed.]

Formerly I had many a section with the lower edge of the comb built to the separator. When honey was coming in slowly, the bees would fill the side of the section nearest the center of the super faster than the other, and this made the section swing out of plumb, the lower edge coming so close to the separator that the bees fastened it there. Latterly I don't have this trouble, and I think it's because I use bottom starters. The top starter is fastened to the bottom one before the bees put in much honey. [This seems to be a little at variance with the article by G. M. Doolittle in our last issue, page 861. Now, who is right? It would be fun to see Dr. Miller and Doolittle lock horns. Gleanings will furnish the arena.—Ed.]

Honey-jumbles. Flour, 196 lbs.; lard, 10 lbs.; honey, 12 galls.; molasses, 3 galls.; carbonate of soda, 4 oz.; salt, 1 lb.; water, 3 galls.; vanilla extract, 1 pt. [If this is the real honey-jumble recipe that we as bee keepers have been trying to get hold of for years from the bakers, it is a real acquisition; but knowing the exact proportion of ingredients is one thing, and knowing how to put them together and produce a nice honey-jumble is another. I wish some of our women folks who are adepts at making nice cakes would try their hand at this, and report their success. Of course, they will necessarily have to reduce the proportionate quantities.—Ed.]

Ten tons of honey is used annually by Woodward & Stone, owners of biscuit and confectionery works at Watertown, Wis., as reported in *British Bee Journal* by E. H. Taylor. He was told that nearly all bakers and confectioners use honey in America, and that the United States could not produce enough honey, but had to import from West Indies! Two recipes used at Watertown are given in other "Straws." [It's queer we have to go clear over to England to get this interesting piece of news regarding the doings of some of our own countrymen. The more of such concerns in the country, the better for bee-keepers; but I somewhat doubt the statement that the United States can not produce enough honey for its own use. This may be true, however: Bakers use off or dark grades of honey, and there may not be enough of this on the market to supply their demands; consequently the imported article is used.—Ed.]

AMALGAMATION.

WHY IT SHOULD BE EFFECTED ON LINES LAID DOWN BY THE LINCOLN CONVENTION; THE SENTIMENT OF ARIZONA BEE-KEEPERS.

By J. Webster Johnson.

I desire to say a word in favor of the movement to amalgamate the N. A. B. K. A. and the N. B. K. Union. These two organizations have been useful in their way and place; but necessarily, from the nature of each, no very considerable membership could be expected. The Union has done good work in its special line, but not one bee keeper in fifty has had any personal interest in its work, and especially is this true of the larger producers. The N. A. B. K. A. has been simply an annual convention held at various points. The regular attendants have been very few in number, the major-

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ity of the participants being from the immediate neighborhood where the meeting is held. It has, no doubt, been very pleasant to those who were able to attend, but I fail to see where it has been particularly useful to bee-keepers in general. On the other hand, the proposed U. S. B. K. Union, as it will be if this constitution is adopted and amalgamation is effected, will be an organization, it seems to me, in which every producer of honey, and especially of the extracted article, will be directly and greatly interested. I believe that adulteration is the one great obstacle in the way of our industry. It is something we can do but little, individually, to combat. Coöperation is necessary. A well-organized union on the plan set forth in this constitution, in charge of a strong board of directors, and with an energetic, level-headed manager, would be in position to wield a powerful influence for good along the lines set forth in Art. II. of that constitution.

This constitution may not be perfect; but I do not see any special weakness in it. Nothing can be gained by another year's delay, as proposed by Mr. Newman, and certainly much valuable time will be lost by such delay.

I have not had time to consult many of our bee-keepers here on this subject, yet I feel safe in saying that nearly all would join such an organization, and contribute very cheerfully to its maintenance; and I certainly hope that this movement for amalgamation will be successful.

I read with interest Mr. Hatch's article, page 777. Had he been better acquainted with that other association of which he speaks he would have known that many of the obstacles which he brings forward have been overcome by us. If I considered this subject one of general interest I might explain somewhat in detail the workings of our association. I do not consider a national association on lines suggested by our California friends as feasible; but on the lines of the proposed U. S. B. K. U. it will be a grand thing.

Tempe, Ariz.

DRAWN COMBS FOR SECTIONS NOT A NEW IDEA.

THEIR EARLY USE, AND BY WHOM.

By M. M. Baldridge.

My attention is called to an article on "Drawn Combs for Sections," in GLEANINGS, page 779, written by Samuel Simmins. The editor, in his footnotes, says: "I am inclined to give Mr. Simmins credit for first conceiving the great possibilities and advantages of drawn combs in the *production of comb honey*. Now, if any one in this or any other country is prior in this idea, let him hold up his hand." Mr. Simmins says that he called the attention of the public to the importance of "drawn combs for sections" as long ago as 1886, in a small pamphlet that was sent to Messrs. Root and Newman in that year. That may all be true; but unless Mr. Simmins can show that he conceived the importance of such combs several years prior to that date, he is certainly behind the times.

In June, 1884, Mr. E. T. Flanagan, of Belleville, Ill., sent to me a carload of bees from New Orleans, to be managed for him that season on shares. The bees were unloaded in this city, and they remained here and near here until the latter part of August of that year, at which time they were reloaded on a car and taken to East St. Louis by the writer. There were 150 colonies of bees, all in two-story Simplicity hives; and while here they were devoted chiefly to extracted honey. In the mean time the writer prepared for Mr. Flanagan 50 Langstroth hives, with 8 frames only, Heddon style. Each of these hives was provided with two supers holding 28 sections each, and these were taken to East St. Louis at the same time the bees were, and in the same car with the bees. By referring to my diary for 1884 I find that about 40 sets of those sections were supplied by me with "drawn combs" produced by those bees while in this city. My purpose was to have those sections, with empty "drawn combs," filled with honey after reaching my destination near East St. Louis. But on my arrival there I found the season too far advanced to use the sections of "drawn combs" to advantage, and therefore confined the bees to extracted honey. When the season closed, the bees needed all the honey they had stored there for winter use, as Mr. Flanagan will now remember. I came back to this city after the honey season closed near East St. Louis, and the supers filled with "drawn combs in sections" were left in or near the apiary. What became of them I do not know; but my recollection is that they were, later on, taken away and sent "down south" to some other apiary by Mr. Flanagan, or by his order.

Again, in 1886 I had charge of three apiaries in Columbia County, Wis., and again on shares. These bees were the property of one Rufus Morgan when the contract was made by me to manage them on shares; but later on they became the property of the Roy Brothers. During that season our total crop of surplus honey was nearly 20,000 lbs.—about half of which was in sections. One Eugene Otis, who then lived and still lives in Batavia, Ill., was my partner in the management of those bees. During that season Mr. Otis and I paid special attention to "drawn combs for sections," and we secured not less than half of the crop of section honey in such combs. These combs were simply drawn out on foundation *in full-sized sheets*, and then cut to proper size and transferred to the sections. The sheets were of the same size as those used for brood-frames. And this, in my opinion, is the only *practical* way to secure

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such combs to advantage, and *properly drawn out* for comb honey. I regard the method described by Mr. Simmins in securing such combs as extremely crude, and by no means equal to the one adopted here—not by me alone, but by others whom I will not attempt to mention now.

Now, I trust that no one will harbor the idea that the writer of this claims to be the originator of "drawn combs for sections," for such is not the case. It is my belief that the party who first conceived the idea, and who, perhaps, has made a more extended and profitable use of it than any other man living, whether in Europe or the United States, is still alive, and resides in this (Kane) county, but who, for reasons best known to himself, did not regard it as good business policy to make the matter public through any of the regular bee-periodicals. For that reason, mainly, the matter has been kept virtually a secret by the few to whom it was disclosed a long time ago.

St. Charles Ill.

[Yes, it seemed to me, as I know it did to Mr. Weed, that Simmins' method of securing the drawn combs was laborious, not to say crude.

But the point that interests me is, that you and the bee-keepers you have named found that there was a real distinct advantage in the use of drawn combs in sections. The day will come, and I believe it will not be far distant, when *all* progressive comb-honey producers can't afford to use any thing else.—Ed.]

THE BIRD THAT PUNCTURES THE GRAPES.

THE ORIOLE THE GUILTY BIRD.

By Thaddeus Smith.

I have a large vineyard, and have over 50 varieties of grapes, and have been in the business for a number of years, and have naturally paid some attention to investigating the enemies and diseases they are liable to. I have at times had as many as 40 colonies of bees within 100 yards of my vineyard, and after several years of thorough investigation I completely exonerated the bees from being the author of any damage to the grapes; and as I have on more than one occasion given my views on this matter in the columns of Gleanings I will not discuss it further here.

There are a number of birds that eat grapes, and some that destroy them without eating them. The robins are the more numerous and more frequent visitors to the vineyard, and in their fall flight south they appear here by the thousands, and are very destructive to the smaller varieties, such as Norton's Virginia, Bacchus, Delaware, etc.; and it is sometimes necessary to keep a man with a gun in the vineyard; but they do not do much damage to the larger grapes, such as Catawba, etc. Yellowhammers and woodpeckers eat some grapes; but I can afford to give them all the grapes they eat for the benefit they do in destroying worms and insects.

But the bird that is most destructive to grapes, and the one that pierces them, to be followed by the bees, is that beautiful little sweet singer, the Baltimore oriole; and I have no doubt the specimen procured by the editor, and sent to Prof. Green, was one of them.

When a boy I knew, and was quite familiar with, the oriole as the "swinging bird," so called from their habit of building their curious pendant nest from some overhanging swinging limb of a tree, woven with scraps of hemp, lint, and strings, and deftly tied to the limb—hanging down like a small bag. I loved him for the brilliant plumage of the male, for his gay and cheerful snatches of song, and the curious nest they made, two or three of which were made every spring in the pendant limbs of the big buckeye-tree in the yard of my "old Kentucky home," safe even from a boy's curiosity to know what kind of eggs she laid, and it was hard for me to look upon it as an enemy.

Only a few orioles breed here; but, like the robin, in their migration they appear here in large numbers in August and September. They arrive just in time for the early grapes, and prefer the tender-skinned varieties such as Delaware and Brighton. They do not eat the grapes, but simply puncture them with a small triangular hole. I have never found grapes, or grape seed in their crop.

Why do they pierce the grape? A bird will alight upon a cluster, and, with a quick motion, thrust its sharp bill into one grape after another until a dozen or more are pierced, as if in pure wantonness. It must be only for the drop of juice they get from each grape. Some of the punctures can scarcely be seen when first done; but they all have the three-cornered cut. They are thus left to rot, dry up, or be visited by the bees; and the number of grapes destroyed, or clusters spoiled for market, amounts to more than the damage done by all other birds.

The matured male bird is familiar to all, and easily recognized by his bright colors of orange, black, and gold; but the females and all young birds—male and female—are of a rather dull olive hue, with black and pale yellow intermingled—not all of a uniform color, and are not so easily recognized, and may be mistaken for other birds, as in the case of Prof. Green. They have a stout long bill, very sharp-pointed. When I first found grapes punctured with three-cornered holes it was quite a mystery as to what did it. It took patient watching and waiting for some years before I was certain of the guilty party; but evidence has accumulated until there is no doubt.

There is another oriole here besides the Baltimore. It is a smaller bird. The male is nearly black, with a few streaks of yellow, and the female a light dingy yellow. They make a nest somewhat pendant, of long blades of

grass. A pair nested this summer under a limb of a Norway spruce near my front door, and it was interesting to watch them bringing great quantities of worms and insects to their young; but I have never caught them on the grapes.

I will add that the bees paid no attention to the punctured grapes this (last) season, because there was a good flow of honey from heartsease and goldenrod at the same time. It is only in scarce times that they will go on bruised fruit.

Pelee Island, Can., Nov. 7.

[It is very possible that the bird that has been making us the trouble in our vicinity was an oriole; but it is not the Baltimore oriole, for I am quite familiar with that species. I used to spend considerable time with a friend who was a taxidermist, in gathering specimens. I remember we once came across an oriole's nest suspended over a stream of water. He coveted it, and so did I. The tree could not be climbed, and how to get the nest was the problem. Little dreaming that I should be able to do it I boastingly said to my friend that *I* would bring it down for him if he would fetch the birds; and, raising my rifle to my face, I aimed at the slender twig that held the nest, some 40 feet above. There was a sharp crack, and down came the nest, the twig having been neatly cut by the ball. I was as much surprised as my friend, although I didn't say so; yet *I* knew that it was only a "luck shot."

The two orioles were then secured, stuffed, and mounted, together with the nest. I shall never forget the markings of both birds and the peculiar shape of the nest secured in the manner stated. For this reason I feel sure that the little guilty culprit that has been puncturing our grapes was not a Baltimore oriole, although it might have been a near relative.—ED.]

BIRDS, BEES, AND GRAPES; A FLOCK OF SPARROWS CAUGHT IN THE ACT.

Mr. Root:—Replying to your article on birds, bees, and grapes, page 827, I wish to state that, during the last summer, I had 28 colonies of bees located right among my grapevines, which were heavily loaded with fine fruit; but I never saw a bee molest the berries. However, they worked some on plums that the birds had first punctured. This was done by the jay birds mostly. It is very seldom that I see a sparrow on my premises. I usually pick them off with a 22 rifle, and the remaining ones seem to take the hint. My father, who lives in the little town of Roselle, a mile and a half from my place, and who grows a number of fine varieties of grapes, called my attention to the fact that the bees were working on his grapes. I told him it was the English sparrow that was doing the initial work, and that the bees would then follow and clean up the punctured grapes. We watched a while, and presently a large flock of sparrows alighted on the grapevines and began their work of destruction. After the sparrows were gone, the bees worked on the spoiled grapes. This convinced us that the birds are the aggressors. The English sparrow came in for his full share. There are few sparrows on the farms, but the towns are full of them.

Roselle, Ia. I. W. HOFFMAN.

We note that, along with other industries that are starting up after election, are several glucose-factories.

Dame Nature is enlivening the hopes of bee-keepers for a flow of honey in 1897 by drenching the land with copious rains. We have already, Nov. 24, had about as much as we had during the entire winter of 1895.

Experiments of Sir John Lubbock prove that ants are the longest lived insects known. A species of ant tenderly cared for lived 15 years, another 13 years. A queen laid fertile eggs when past the age of 9 years. We might wish that bees could live to the above age, but we question whether it would be of any benefit.

Mr. C. A. Hatch, of Wisconsin, is certainly one of us. He intends to try at least one season of bee-keeping in California. He has tried one season in Arizona; and with one season here he will be able to decide where to locate permanently. We hope it will be in California. Any way, we shall use Mr. Hatch well, so that he can find no fault on that score.

For a new and economical process of rendering wax, perhaps some of our bee-keepers may find interest in the following:

Please publish in the Farmers' Department a recipe for making beeswax, how it is made, and what process it takes; also how it is done for market purposes; and if old comb would be salable.
JOHN TEMPLETON.

The wax is already made by the bees. The only thing man can do is to separate it from the honey and impurities. To separate from honey, put comb and all into a sauce-pan, with one tablespoonful of water to each pound of honey. Heat gently, and stir occasionally with a wire until all contents are melted. Do not bring to a boiling-point. Set aside to cool. The cake of wax that will form may be carefully lifted off with a knife. It is usually pure enough without further process.

A saucepan, teaspoon, and a wire is all that is necessary.

Aury Denillo Dimmic Wood. Any one would naturally think that a person bearing the foregoing name would be somewhat dwarfed, sickly, or short-lived; but the subject under consideration seems to thrive in spite of the name, and is a tall handsome man known for short as A. D. D. Wood, of Lansing, Mich. Mr. Wood spent one year in California, and then returned to Michigan. When he came out here he was much enthused at the idea of rearing queens on the beautiful Catalina Island, 25 miles off our coast. He secured the right to put down a queen-rearing apiary near Avalon. The scheme contemplated a large apiary upon the mainland, and a fertilizing apiary on the isl-

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and. Investigation, however, showed many bees already on the island in caves, and Mr. Wood reluctantly gave up the scheme. We predict Mr. Wood will return here some time and become one of our successful bee-keepers.

AN EPISODE.

Bee-keepers should not be unduly observing in the city of Los Angeles, or perhaps, for that matter, in any other city. The writer was recently sauntering along in the suburbs of the East Side, and, observing a blue-gum tree nearly in bloom, stopped to give it a more critical examination. While indulging in this laudable purpose a lady from a house near by skipped out to the sidewalk and shouted, "Air you the city tree-inspector?" The front rim of my straw hat came down from an acute perpendicular to a horizontal position with alacrity, and I meekly replied, "No, mom, I am not the official inspector.

"Well, what on earth are you staring up all the trees for?"

"My dear mom, I am a bee-keeper, and I am merely inspecting the mellifluous inflorescent condition of the frondescent furfuraceous flow —"

"Whew!" said the lady drawing a deep breath. "Say, stranger, if you are one of them scientific fellers, who don't know any better'n to sling around such words as them 'mungst common folks, you jest step into our back yard. You'll find a humpbacked cherry-tree there you can talk to by the hour. Mebby you'll be useful enough to straighten it. Good bye," and she ambled into the house.

I did not interview the cherry-tree, but peacefully pursued my way with less slant to my hat-brim, and sighing to think that the free ways one enjoys in the country can not be brought into the city without causing criticisms.

WINTERING IN THE SOUTH.

A REAL PROBLEM; SOME OF THE DIFFICULTIES IN FEEDING TO PREVENT STARVATION.

By Adrian Getaz.

There is no wintering problem in the South, is the general verdict of all our leading writers. That is true in a certain sense; but nevertheless there are some serious difficulties, of course of a different nature from those met in colder climates. Here in East Tennessee the winter period begins about Nov. 1, at the end of aster-blossoming, and ends some time during the latter part of March when the maples blossom—a period of nearly five months.

The chief difficulty lies in the nature of the weather, which is not cold enough throughout the winter to stop entirely the working and flying of bees. The general program is a few days of rain, followed by a day or two of cold and clear weather; then the temperature rises gradually during a few days. During that time bees fly every day. A great number go out too late in the evening to come back before getting chilled, and are lost. If the sun strikes the hive they will come out when the air is too cold, and be chilled before they have been able to get back. Sometimes, if there is snow on the ground, they are blinded by the light, and fall down to rise no more.

After a few days of rising temperature the rains come again; then a cold wave, and the process is repeated through the whole winter. For a variation some snow takes occasionally the place of the rain—rarely more than a few inches, which disappears during the following warmer days. Once or twice during the winter the temperature may fall quite low (in the neighborhood of zero); and the snow, if there is any, may not disappear during the following days of relatively high temperature. We have then, for perhaps two or three weeks, a state of affairs more like the northern winters except that the temperature does not fall nearly as low. That kind of climate causes considerable loss to the apiarist. In the first place, some bees are lost by not being able to return home, either by being chilled or by some other accident. Then there is, during these warm days, quite a consumption of honey, and, worse than all, quite a little amount of brood raised, which entails not only a diminution of stores but a loss of vitality on the adult bees. If that brood were raised safely, the loss might not be great; but the trouble is, when the next cold wave comes it can not always be covered or fed; and by next flying-day, quite an amount of it will be dead and thrown out. As the spring draws near, this state of things gets worse. The warm days are still warmer; and the cold spells, though not so cold and not so frequent, are yet cold enough to occasion a considerable loss of brood, even after the blossoming of maples and peach-trees. The greatest danger at that period is from the stores giving out, which happens more frequently than an inexperienced person would suppose.

To guard against all this, one or two things must be done. The first is to be sure that every colony has a good deal more than enough honey before entering into the winter period. Another is, to use chaff hives, not so much as a protection against excessive cold as an equalizer between days and nights and between cold and warm days. With a chaff hive, even if it is exposed to the sun, which is the best, the interior of it will, as a rule, never get warm enough to induce the bees to fly unless the outside temperature is sufficient to permit them to do so safely; and the heat thus stored up in the chaff is there protecting the colony during the night. A double case without packing will not do. It will, of course, keep off the warmth during the day, but leave the hive colder than ever during

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the night, as the space between the walls is never air-tight, and will admit a circulation of cold air. So far as I can ju ige, the colonies in chaff hives raise a little more brood than those in single-walled hives; but they lose only very little of it, and that only during the most marked variations in temperature.

Feeding in the early spring to remedy the lack of stores has not proven very satisfactory. Feeding in the hives during day time almost invariably induces robbing. Feeding at night or during cold days, requiring the removal of covers, packing, etc., more or less injures the bees. Besides, it is too cold outside of the cluster to take the feed, and they may starve by the side of the feeders unless the feed is warm. If done in that way the feed ought to be as warm as possible. It may be at a boiling temperature. If cold it will not be taken until the next flying-day. Then the bees, on discovering it, will get excited and set up a great buzzing at the entrance, and attract the robbers.

Feeding combs of honey on top of the frames has the same disadvantage, only worse, as the smell of the transferred honey will be sure to induce robbing. Feeding outside has the disadvantage of being too cold — that is, after the bees know where the feed is they will go there every time they can barely fly. As the feed is colder than the air, it will chill them. This could be obviated by taking the trouble to have the feed warm. There remains yet the objection that the colonies which need feeding the most would be the ones getting the least.

Feeding in Boardman's way, at the entrance, can not be practiced in such cases, as the nights are too cold to permit it. This may sound very strange, but it is so. In northern countries there is a great deal of snow on the ground, and the heat of the sun is employed in melting the snow instead of raising the temperature of the atmosphere. By the time the snow is melted the season is well advanced, and the temperature rises at once considerably. In the South there is no snow at that time of the year, and the sun is higher in the skies; so the temperature rises during the day and falls at night, making then a considerable discrepancy. Perhaps the success might be obtained by feeding at the entrance with warm feed, but I have not tried it.

One more drawback in southern wintering must be mentioned, viz., robbing. This may be termed what A. I. R. used to call quiet robbing. During the warm spells of weather the bees will hunt up every hive and crack in search of something sweet, and queenless or weak colonies are almost sure to be robbed. It is nearly impossible to detect such robbing. It goes on little by little every warm day. As the old bees as well as the young ones take a playing-spell during the few warm hours of the warm days, the robbed and robbing colonies can not be distinguished from the others except by the debris of wax which may perhaps be seen at the entrance of the robbed colony.

It is a well-known fact that a strong colony will start out earlier in the morning than a weak one. During these warm winter days a strong colony may thus gain the entrance of a weak one, and begin robbing on the honey outside of the cluster before the "inhabitants" of the weak colony are fully aroused. I have lost a few small colonies in that way.

I found another cause of winter loss. Sometimes the weather is very dry from August to the end of the season—in fact, so dry that nothing can be gathered at all. In such cases no brood is raised during that period, and the bees going into winter quarters are already some three or four months old, or about that. Their vitality is already nearly at an end, and during the winter they die off at a fearful rate. This state of things is aggravated by the presence of bee-paralysis, and many colonies simply die out.

Knoxville, Tenn.

[I take it that the wintering problem in your locality is more serious than in many portions of the North where it is extremely cold. It would appear, then, so far as wintering is concerned, that it is better to be clear north or clear south. In the extreme North, bees perish because of extreme cold; in the South they are liable to die from starvation, or be robbed out by other bees. The condition of extreme cold can be met by protection; the other one, starvation, can be met by judicious feeding; but in the middle section it is difficult to even feed. If I am correct, then there should be a large supply of sealed stores in the fall.—ED.]

CLIPPING QUEENS' WINGS.

EARLY EGG-LAYING OF A QUEEN; LARGE NUMBER OF QUEEN-CELLS ON ONE COMB.

By Elias Fox.

Friend Root:—I should like to say a few words on several subjects. I would say to Dr. Miller that he offers no better evidence than I relative to bees puncturing grapes. If they can cut holes through new oil cloth over the top of the frames (which they do) they can surely cut the skin of a grape if they were so inclined; but here is the point: Nature has forbidden them. I am no pumpkin-eater, Dr. M., consequently I have had no experience in this line.

A word in regard to clipping queens' wings. I have practiced this for 14 years, and my queens' wings are just as long and just as strong to-day as they were then; and, in fact, it is the *only* perfect method of manipulation to-day, where bees are increased by natural swarming. Everybody knows that when bees swarm their instinctive thought is to get away from their old hive; but as soon as they find their queen is not with them this thought is reversed, and that means that every thing else is

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shut out of thought except returning to the old hive which they will invariably do unless they are joined by another swarm that *has* a queen. I have had as many as five swarms in the air at once, and each one returning automatically, as it were, to the old stand, and all readily entering their respective new hives, and the work is all done inside of 20 minutes.

In my bee-keeping experience I have had *one* case that I have never heard of or seen on record; that is, a queen fertilized and laying in four days from the cell. Now, don't let some one jump up and say this is only guesswork, for such is not the case. It occurred at about the beginning of my bee-keeping. I was desirous of increasing and Italianizing. I took a frame of eggs and bees from a strong colony, and placed it in a nucleus hive, and they built cells, and about the 12th day I removed all but one, and on the morning of the 16th day I made an investigation and found the cell not yet hatched. I looked again at noon, and found the cell hatched, and a fine thrifty-looking queen. On the afternoon of the fourth day from this time I made another examination and found the queen had just begun to lay. I caught and clipped her, and she went right along with the business of the hive and proved to be a fine prolific queen.

Now for another story which to some will seem quite as incredible. Last summer I had a queen that I was desirous of breeding from; and one afternoon late I took an eight-frame hive and took a frame of brood from this queen and put it into the hive. I then took a frame with adhering bees from the upper stories of five different hives and put into this hive, and shook the bees from as many more frames from this same upper story in front of this hive, smoked them in, put a wire screen over the front of the portico, put the hive into my buggy and brought it home with me and set it in my garden. I did not look at it until the morning of the 14th day, when I found four queens tumbled out at the entrance. I opened the hive and found 65 perfect queen-cells on this one comb. Who can beat it? I think I can account for the large number, and I should like to hear from the high authorities to see how many get it right.

Hillsboro, Wis., Oct. 30.

[The circumstance you refer to, of a queen laying inside of four days from the date of hatching, is perhaps a little out of the ordinary; but nevertheless, if I remember correctly I had several such cases come under my observation in our apiary while I was actively engaged in raising young queens. At the time the matter came up in the journals it was concluded, I believe, that very often queens were confined or kept from emerging from the cells by the bees. Indeed, some took the ground that they were actually fed in the cells. In some cases it was estimated that the queens were confined anywhere from three to four days after the date when they should be hatched. This being the case, it would be nothing strange if such queens should begin laying within four days after emerging from the cell. But in ordinary cases, when the young queen hatches at the end of the 15th or 16th day from the laying of the egg she will not begin to lay very often before eight or ten days.

Regarding the very large number of queen-cells on one comb, I would state that, shortly after friend Jones introduced into this country and Canada the Holy Land bees, there were a number of cases reported, I think, where as many as 50 and even 75 queen-cells were found on a single comb. Holy Land bees will build more cells than any other race of bees that we know of. I remember once of holding in my hand a comb containing nearly 50 cells. It seems almost incredible, but 20 of these cells hatched out while I was holding the comb, or within a period of 30 minutes. This was recorded at the time in GLEANINGS, and now appears under the head of "Holy Land Bees" in our A B C of Bee Culture. So many young queens hatching at a time was something extraordinary, and probably will not be observed every day by queen-breeders by considerable. If the colony you refer to, that reared 65 perfect queen-cells on one comb, were Italians, the fact is something extraordinary. Six or eight cells are as many as these bees will usually raise on a single comb.

I omitted to state that, when these twenty young queens hatched inside of 30 minutes, two or three of them took wing and flew a short distance, but were recaptured. I saw this with my own eyes, and I know there was no mistake. This would go to prove the statement above, that some of these queens had been held back probably two or three days beyond the time when they should ordinarily hatch.—[ED.

FULL SHEETS OF FOUNDATION IN BROOD-FRAMES.

Question.—Which pays better—to put full sheets of foundation in the brood-frames, or put in only starters and let the bees fill the frames with natural comb?

Answer.—That depends a good deal on the wants of the apiarist. If he is working for extracted honey, and wishes his frames filled with worker comb, so that he can use these combs in any place in the apiary, then it is almost a necessity to use foundation; otherwise only drone comb will be built in the upper stories, over the brood-combs—especially where a queen-excluder is used, as it is best to do when working for extracted honey. Extracted honey is best produced with very strong colonies; and such colonies, as a rule, will build mostly drone comb when a honey-flow is on, while such comb is a disadvantage to any apiarist only as it is kept for special use over queen-excluders. Of course, drone comb works equally well with worker comb for extracted honey, where queen-excluders are used; but unless the average apiarist is very different from Doolittle, there will come a

time in his life when he will say he would give almost any thing if these combs were only worker combs so he could use them just when and where he pleased. Where half-depth combs are used for extracting, as the custom of some is, it does not make so very much difference whether they are of the worker or drone size of cells; and in this case I would allow the bees to build their own comb in the frames. If the apiarist is working for comb honey, then "which is best" will depend on whether he is going to allow swarming in his apiary or whether he is going to keep his bees from swarming. If the latter (I doubt about his success in this, however), then he will have as much need of foundation when combs are being built as he would if he were working for extracted honey, as strong colonies building combs under any system of non-swarming will give a drone size of cells more often than otherwise. But if he is to work his bees on the swarming plan, and use full sheets of foundation in the sections (such use of full sheets being considered right by the largest part of our practical comb-honey producers), then I should say it would pay to allow the bees to fill the brood-frames with natural comb. Each new swarm seems to go prepared for a start at comb-building in its new home, and such building seems to give them a greater activity than they show if the hive is supplied with empty combs or frames of foundation; and I often think that, if the hive is contracted so as to hold two-thirds of the number of frames needed to fill the whole hive, this number of combs will be built by the bees without the loss of a single pound of honey to the apiarist, while the cells will be very largely of the worker size, unless an old or failing queen is used, in which case little else besides drone comb will be the result, under any circumstances.

But, really, the nicest way, where we decide to have our combs built by the bees, is to set apart each year all the colonies we may happen to have, when the honey-flow commences, that are not strong enough to do good work in the sections, or upper stories of hives for extracted honey; and as soon as the honey-flow commences, take away all their combs, giving the brood to other stronger colonies to make them still stronger; when just what frames these little colonies of bees can work on to the best advantage are to be given them, each having a starter of worker comb or comb foundation in it, say from half an inch to an inch in depth. In this way I can get the nicest of combs built; and by taking them out in such a way as to keep the bees desiring only worker brood, a worth of combs may be obtained greater than any value of honey which it would be possible to produce with them. At least, this is the way I think I have proven the matter; and if any are skeptical on this point, it will be very easy for them to test the matter for themselves; and if the plan does not prove in their hands as it does with others, then they can change to what seems best with them.

CELLAR WINTERING.

Question.—I have a few colonies of bees which I wish to winter in my cellar; but I fear to put them in, as some of the family must go into the cellar two or three times a day for vegetables, and I fear this will be a damage to the bees. Do you think such a cellar would do for wintering bees?

Answer.—A cellar which will keep vegetables well will answer well for wintering bees; and going into it every day need not disturb the bees, especially if they are placed so the light does not strike them. If the cellar is dark, all that is necessary is to hang a thick blanket in front of the hives, or turn the entrances of the hives toward the wall, so that the light from the lamp shall not shine on them; or a part of the cellar may be partitioned off so as to make it dark. The hives should be set from eight inches to a foot from the ground, so as not to be too damp, and the platform they rest upon should be large enough for only one hive, and rest on the bottom of the cellar; otherwise when one hive is touched, all are jarred; and any trembling of the floor above will cause an uneasiness among the bees. The hives can be piled on each other till they nearly touch to floor above, but should not be connected with it, or more than one tier with other tiers. The full entrance should be given; and if a bottom-board giving a two-inch space below the combs (like Dr. Miller's) is used, so much the better. The bees should be set in from the middle of November to the middle of December, on some quiet day when the hives are not frozen to their stands, if possible. It is generally thought best to allow them to remain in the cellar till soft maple and elm begin to bloom; but some think it is better to set them out earlier, or as soon as any colony on its summer stand obtains pollen from any source. The right temperature of a cellar to winter bees is from 42 to 46°; but if fixed as given above they will do well as low as 35 to 40°. If the cellar is one where the temperature goes as low as the freezing-point, and stays there for any length of time, I should prefer to leave the bees on their summer stand; for a continued temperature at about the freezing-point, or a little below, seems to be very injurious to bees confined in a cellar or room.

AN AIR-TIGHT SUPER FOR COMB HONEY; DANZENBAKER'S REPLY.

I find a Miller Straw, that was hardly intended to break my back, but rather to break the

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idea that I might "possibly be right" about the bees having to gather propolis to seal the supers air-tight before commencing to store honey in supers. You may be strongly of the opinion that your bees do nothing of the kind; they always work much faster if the super is secured "ready made" air-tight for them by me, as the smallest leak for the warm air of the supers carries off the bee-heat, so essential to rear brood, and to spread and shape the wax and cappings. I always find the fancy filled sections in the center of the super in the warmest part of it, as most other raisers of fancy comb honey do. The secret of having sections fastened to the bottom (without puttering with an extra bottom-starter) and all round to their sides, is, to have the supers air-tight and uniformly warm, which is best secured when they are air-tight at the top and sides; no leaks for me, please, anywhere, except at the entrance, where I have ⅜ in., full width of hive front. Early in the season there is not an hour in ten days where propolis is soft enough for the bees to collect it, no matter how much they suffer for it nor how much they lose by it, requiring two-thirds of the bees to stay in the hive warming, leaving a third for the field, when an air-tight covering might spare a half or two-thirds to go gathering at a time when an ounce of honey for brood-rearing means 1 lb. of surplus later on—just 16 to 1. I prefer to err on the warmer side of the case every time in practice, and I have some pleasing commendations from others who have tried it.

I have known bees to build comb clustered in the joint of a rail fence; but I know they could do four times as much in a close warm hive; and I will assert, and venture to prove, if needed, that a snug warm super is worth two or three ordinary ones. In fact, in poor years they are the only ones that secure any surplus in comb honey at all.

F. Danzenbaker.

[The following very complimentary notice of the Danzenbaker hive and system appeared in the *Bee-keepers' Review* for October.—Ed.]

Mr. F. Danzenbaker was one of my principal competitors at our Michigan State Fair this year; in fact, he carried off the first prize for the best comb honey in the most marketable shape. He certainly had the finest honey I have seen this year, and I have exhibited honey at five State fairs. His honey was gathered during August in this State, mostly from that famous willow-herb that springs up in the northern portion of the State after forest fires have run over the ground. Mr. Danzenbaker secured his honey in his new hive; and, by the way, his hive received a special diploma at the same Michigan State Fair, where he was kept busy much of the time in explaining its advantageous features to a crowd of inquiring bee-keepers.

E. KRETCHMER AND THE NEBRASKA BEE AND HONEY HOUSE.

Mr. Root:—I notice in Gleanings of Dec. 1 an article from the pen of E. Kretchmer, under the caption of "The Nebraska Bee and Honey House." We desire to say that, while we are feeling justly proud of this honey-house, and of the progress made by bee-keepers in this State, yet in justice to Mr. Kretchmer we desire to state that not *all* of the success achieved in this State is due to the gentlemen named in his article, but that a very great amount is due to Mr. Kretchmer himself, who has always been found in the front rank, and with his shoulder at the wheel, helping along this young but fast-growing interest in Nebraska, and as much success is to be attributed to him as to any other one person. For several years Mr. Kretchmer has been an honorary member of the Nebraska Bee-keepers' Association, and nothing lends more zeal to our meetings or annual exhibits than the presence of Mr. Kretchmer and his excellent wife. We feel more honored at this time in rendering to him that mead of praise which is justly due him as one of the hardest workers and deepest thinkers who preside over an apiary west of the Mississippi.

Friend, Neb., Dec. 5. E. Whitcomb.

[Doubtless Mr. Kretchmer was too modest to speak in his article in his own behalf. We are glad to have him receive the credit he deserves in the matter.—Ed.]

WHAT CAN BE DONE WITH 1 LB. OF BEES AND A QUEEN AT THE PROPER SEASON.

Early in April I had two hives shipped from Michigan. On looking into them I found them to be without queens. At once I sent away for two queens. By the time they arrived, there were no bees. Then I sent at once for 2 lbs. of bees, and started out again. Below is the result:

HIVE NO. 1.

1 queen from Jennie Atchley	$1 00
1 lb. bees from Pennsylvania, including ex.	1 60
Sections and foundation	20
Total	2 80
34 lbs. honey in sections, at 12c	$4 08
1 swarm from same	5 00
Total	9 08
	2 80
Net gains	6 28

HIVE NO. 2.

1 queen from Taylor, Arkansas	$1 00
1 lb. bees from Pennsylvania, including ex.	1 60
Sections and foundation	15
	2 75
This queen was killed during August, and four queen-cells started. I got 17 sections of honey at 12c	2 04
No swarms. This shows the difference in queens. This queen must have been an old one, because she did not lay well from the start.	
Loss	71
Both queens were untested.	
On hive No. 1, the gain was	6 28
On hive No. 2, the loss was	71
Leaving a net gain of	5 57

Mayfair, Ill., Nov. 13. H. S. Jones.

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[A number of years ago one of our neighbors, Mr. Harrington, an expert queen-breeder, took a pound of bees in late August, and by giving them untested queens, and feeding them, he had them increased up to five fairly good colonies for winter by Nov. 1. This shows what can be done in the way of increase. Your results, both in increase and honey, are perhaps as good, or even better.—ED.]

OHIO PURE-FOOD LAWS.

Mr. Root:—I notice in the report of the N. A. B. convention, page 724, *American Bee Journal*, that Dr. Mason, in talking about our pure-food laws, says: "Dealers don't dare to offer any thing that they mistrust is adulterated." Now, is not Dr. M. away off in this statement? and is not the dealer safe in offering any mixed or adulterated goods if there is a formula printed on the package? Certainly the grocers in my part of the State offer glucose mixtures freely, and no one questions their right to do so, the same as oleo, prepared mustard, etc., as long as the printed formula is on the package. I supposed the object of the law was not to prevent adulterations, but to make the adulterators sell their stuff for what it is.

Oberlin, O., Nov. 19. CHALON FOWLS.

[Although the report referred to may not show it, Dr. Mason implied in his talk that the samples were not labeled in a way that would show a certain percentage of glucose. Taking the quotation that you refer to, notice he says that "dealers do not care to offer any thing that they mistrust," etc. You will see there could be no *mistrust* if there were a formula somewhere on the package.—ED.]

ANSWERS TO QUESTIONS; OLD VERSUS NEW COMBS; WIRING; NATURAL BUILT COMBS OR FOUNDATION.

1. I know a good deal about bees and a great deal I don't know. Please answer the following questions: Will old combs that have been used for brood be as good as new comb, to be used to fill for extracting, or will the honey be darker in the old comb? 2. Are new combs built by the bees without wiring sufficiently strong to be used in the extractor without breaking? Is a two-comb extractor sufficiently large for 40 hives, spring count? 4. Would you consider it profitable for me to buy foundation and pay freight and duty, and fill the frames full for both extracting and brood, or let the bees do all of the building, with the exception of narrow starters? Which do you consider the more profitable—whole frames or half-frames to be used in the top for extracting?

Steveston, B. C., Nov. 14. M. STEVES.

[1. It is generally considered that the honey from old combs is liable to take on more or less of a darker shade than when extracted from new combs. To get, then, a really first quality of extracted, it is better to use combs not too old.

2. Yes and No. Some bee-keepers do get along without wiring the frames, and claim that it is not necessary; but the majority insist that they can work faster, because there is no danger of breaking out combs when wired. I should never think, myself, when wiring is so inexpensive, of getting along without it.

3. Yes.

4. Better buy your foundation in Canada. E. L. Goold & Co., of Brantford, are prepared to turn out the new-process foundation. It is usually not profitable to pay duty when the same article, or practically so, can be bought at the same figure without the duty added. It pays to use full sheets of foundation rather than starters. Mr. Chalon Fowls, of Oberlin, O., once said to me that he could not afford to buy hives, but he could afford to buy brood-frames and foundation—full sheets at that.—ED.]

BEAR-HUNTING IN ARKANSAS.

Mr. Root:—I have shipped to you by express a two-year-old bear-foot, and hope you will tack it up in your workshop that the young boys and girls may see what Arkansas grows. Myself and party have hunted 20 days, and killed 18 bears and other game too numerous to mention. I should have been pleased to have you with us, and think the meat diet would have been all you could ask for.

My honey was a failure, the first time in 25 years. Bees are in fine condition now, with plenty of stores for winter. ANTHONY OPP.

Helena, Ark., Nov. 27.

[The foot came to hand in due time and in good order, and a fearful-looking thing it is. Let the readers of GLEANINGS imagine a cat's paw with claws extended as big as or bigger than the foot of an ox, and they will have a fair idea of the thing.—A. I. R.]

A POINTER FOR THE 8-FRAME SIZE OF HIVE.

Back in the 70's I wrote you for a 10-frame Simplicity hive. I had previously been presented with a copy of Quinby, and used the hive he recommended, but found it too large for this locality. After using the 10-frame Simplicity for three seasons I cut it down to 8 frames, and have not since regretted the change, although I am some seasons troubled a great deal with incessant and uncontrollable swarming, as I run only for comb honey in 1-lb. sections.

Cushing, Ala., Oct. 12. ROB'T F. COLES.

[This has been the experience of many another; and yet there is quite a large following, who, after having experimented, think just the other way. The result seems to vary with the person and the locality.—ED.]

5000 LBS. OF HONEY FROM 130 COLONIES, WITH AN INCREASE OF 45.

I have harvested this year, from 130 colonies, about 5000 lbs. of honey, mostly comb. About 4000 lbs. are clover, basswood, and some earlier make, and about 1000 lbs. is from buckwheat. I increased to about 175 colonies. Swarming was excessive. F. GREINER.

Naples, N. Y., Oct. 31.

Is honey an animal or vegetable production?

Bath, O., Nov. 9. A. S. GUNDRUM.

[It is generally said to be an animal production; but without any question its *source* is vegetable.—ED.]

AFTER Fred's departure from Sacramento with Dr. Hayden and his party, Matt Hogan commenced his journey up the river astride the little Indian pony. Matt was a sociable fellow, and his tongue was never idle when anybody was near to talk to; and now, having only the pony for a companion, he kept up a running conversation at times with it, as the mood seemed to strike him. When the pony would persist in going at a too rapid gait, Matt would shout, good naturedly, "Whoa, now, me beauty, take a rist. Yees are too ambitious intirely. Yees must spare yees nimble iegs; for did yees but know it yees are to be a lady's pony. A foine lady she is too, barrin' a few mintal throubles. It is becoming of yees to be promoted from the society yees have been a kaapin', to the gintle society of the professor's daughter. But methinks me charmin' Biddy Malooney would look quite as well aslant of yer back; but, be gorry, me Biddy 'd never disgrace yees to get aboard of yees asthraddle. But about the professor's daughter, it's meself that's doubtful. Her mintal throubles have so unbalanced her mind, and body too, that she may have to sthraddle yees to hould on, sure. Now, I am a wontherin', too, if all those women who imitate men's ways are not a little mintally unbalanced. Be gorry, it's meself that's a believin' they are. Ah, luck-a-day! this is a quaar world intirely, and it's quaar people we are jostlin' against all the time. But yees are a beautiful baste, and Adrietta is yer name. It is such a beautiful name, too—a match to the foine lady's name that'll ride yees. Bedad, now, I don't believe Fred heard the docthor when he tould me yer name. He would have been sthruck wid it, sure."

So Matt Hogan beguiled his time as he leisurely journeyed up the river; and on the third day in the afternoon he rode confidently into the grounds and up to the residence of Prof. Buell, who was working at the cyprus hedge, and did not notice the approach of Matt until he was within a few feet of him. When he did look up and behold who was before him, his pruning-shears dropped from his hands, and he stared at Matt in speechless and open-eyed wonder."

"Bedad, now, Professor Buell, it's meself and not me spook that's a grinnin' at yees," said Matt as he sprang from the pony and shook hands with Mr. Buell.

"Well, well! Of all the wonderful things," said Mr. Buell. "I was really startled to see you. Surely, Matt Hogan, we thought you dead."

Mrs. Buell, hearing the greeting, came to the door and also expressed her unbounded aston-'shment.

Matt briefly narrated the incidents of his escape from a watery grave, and finally of his meeting with Fred Anderson in Sacramento.

"Fred and I thought each other drowned, sure. The lasht thing I remimber was our tumblin' into the wather on the work-binch, and the baas and the foine honey all a tumblin' with us. And (do you belave it, Misther Buell?) we were riserrected to each other furninst a honey show in Sacramento."

"Well, Matt, we are heartily glad of your escape and return; but what has happened to Fred that he did not return with you?"

"Furninst all of his bad luck, Mr. Buell, Fred is yet a baa-man, honor to his grit, and has gone off to the mountains with a great baa-master. He bought this pony of the baa-master for your daughter, Mr. Buell; and in deliverin' it to yees I must say it is a gintle and beautiful pony."

"It is a beauty indeed," said Mrs. Buell. I knew we could trust Fred to select a pony. Now we must give it a pretty name."

"An', sure, that is what she has already," said Matt. "It is much like yer daughter's—it is Adrietta."

"Adrietta!" said both Mr. and Mrs. Buell, putting up their hands, and advancing a step. "Adrietta! Adrietta! impossible!"

"Sure, it must be possible," said Matt, taken aback by the earnestness of Mr. and Mrs. Buell. "When I was a lavin' the corral with the pony it was tould to me by the docthor."

"Doctor!" said Mr. and Mrs. Buell again, in greater excitement.

"Sure, Misther Buell, it must be me clumsy way o' sayin' it. But I'm thryin' to say that the man that Fred has gone away with, and the man he bought the pony of, and the man

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that tould me the name of the pony, is Docthor Ralph Hayden."

"No, no! heavens, no! Ralph Hayden!" said Mr. Buell, grasping Matt's arm convulsively. But he immediately loosened his grasp and turned to the aid of Mrs. Buell, who had swooned quite away and would have fallen but for his timely support. Mr. Buell, with words of endearment, clasped her in his arms and carried her into the cottage.

Matt Hogan was dumbfounded at the effect of his words, and for once in his life his tongue failed to articulate. In a few minutes, however, he recovered and thus to himself soliloquized:

"Now, be gorry, that's sthrange, and I wonther again am I Matt Hogan or what am I? Is me tongue a shillaly, an' is Docthor Hayden the Divil intirely? It's meself that'll be lavin' this place, for I belave it's bewitched it is. But what's that a rastlin' the bushes? Och! sure, it's me pretty misthress Alfaretta, an' it's a singin' her song she is. She'll have her lover on the saa, wher'r no. Now I'll be on me gintility an' inthroduce the pony."

"A delightful afthernoon, me lady," said Matt, with hat in hand, as Alfaretta approached. "Wid yer permission I'll inthroduce to yees the pony that yer friend Fred Anderson bought. It's meself that brought it all the way from Sacramento, an' it's meself that's a thinkin' yees will fit the back of the pony bether than meself. Yees will look as charmin' as the break of day, when yees ride."

"Ta, ta, Hogan," said she, pointing her finger at him. "How mistaken you are! That's not a pony; that's a jack mermaid to carry me over the water, under the water, over the trees, under the trees. Why, Hogan, you are crazy; your eyes look like peeled onions, your ears like lobsters—crazy, crazy. Can you gallup a broomstick, Hogan?" and Alfaretta teetered toward him sidewise.

Matt could bear no more, and made a break for the Buell wharf to hail the little steamer that was puffing up the river. Alfaretta shouted after him, "Look out, now, Hogan! if you follow the slant of your nose you will go over the trees!"

While Matt was frantically signaling the steamer, Mr. Buell came in haste to the wharf and exclaimed, "Why, Matt, why such haste? I will row you up to Mr. Ghering's."

"No, no! Misther Buell; yees are too kind intirely. I'd bether go on the sthamer. Me thick tongue might say somethin' that'd tip the little boat over. No, no! it's safer for me to go on the sthamer."

Nothing could induce Matt to stay longer; and when the steamer answered his signal and came alongside the wharf he hastened on board, and scarcely uttered a word until, an hour later, he was safe on shore at Ghering's ranch.

It was well toward evening when Matt landed, and the fog was drifting over land and water. He ran lightly up the wharf, and anticipated meeting one or more of the men from the ranch; for upon the well-known toot of the whistle before drawing up to the landing, some one usually came down to see what was put ashore. The men, however, were eating their supper, and the inner man appealed more strongly to them than the outer man or whatever it was at the wharf.

José Silvera finished his repast first, and, lighting his pipe, strode away from the awning, remarking that the steamer had by this landed, and he would see if it was a señor or señorita that they'd put ashore.

With a retrospective feeling of pleasure toward the bacon and eggs he had just swal-

MATT SURPRISES THE GHERING RANCHERS.

lowed, José tramped along with eyes bent to the ground; but when about a dozen yards from the house an evident presence made him look up, and there, through the evening fog, not fifteen feet away, stood Matt Hogan, silent, with arms folded across his breast. José's pipe suddenly dropped from his mouth, a shower of tobacco sparks following it to the ground, and, with a yell of terror, he whirled around and seemed to fly toward the house.

"By the great toe of Paater," said Matt, "that's sthrange again. Me very silence seems to break the sinse of people. It's not Docthor Hayden that's the Divil this time; it's me own silf, Matt Hogan."

While muttering thus to himself he rapidly followed the flying José; and as José dashed into the circle of his surprised companions, who were still around the supper-table at the rear

of the cabin, Matt heard him shout, "El diablo! spirit! gose! give me the gun! Matt Hogan's gose!"

It is a very strange freak of the human mind, when frightened by things supposed to be supernatural, to grasp some deadly weapon for defense. So José called for the gun; but luckily, perhaps, for Matt Hogan, the guns were in the house, and Mr. Ghering sat wedged against the door while he was unlimbering his bulky form. Matt Hogan, seeing the front window open, as a means of self-preservation skipped through it; and when Mr. Ghering and José opened the rear door for the gun, Matt stood with folded arms in the center of the room.

Another yell escaped José, and a "Mein dunder" from Mr. Ghering. He essayed to close the door, but seemed to be for the moment petrified. "Hello, boss," said Matt, in his old, natural way, "what's the matter of all you fellows? I'm not a diablo nor a spirit nor a subject for a dose of lead. I'd prefer a dose of yer bacon and coffee. Give me a lick at it, an' I'll show yees that I'm flesh an' blood an' jaw."

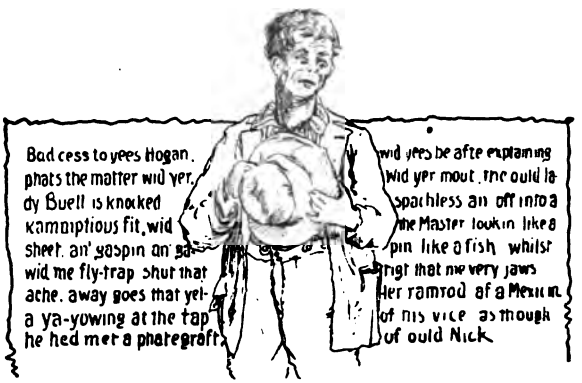
Mr. Ghering, like a true phlegmatic Dutchman, soon recovered from his intense surprise. The rest of the men were no less surprised, for they had all given Matt up for lost. They soon quieted down, and even José came back into the circle, with some hesitancy. Matt's keen relish for the supper dispelled all doubts as to his corporeal existence, and the men began to congratulate him over his escape, and to ask questions. It was at a late hour that night when they all retired, and even then José imagined himself in conflict several times with "un diablo."

Before retiring, Mr. Ghering said, "Vell, Matt, you haf missed several of our interesting meetings at the Dawson place. I tells you they vas become goot, first rate. They vas profitable. More peoples come than efer. The widow Dawson haf improved shust splendid. She vas more as ten years younger, mit plushes all ofer her face, shust like von girl shweet sixteen years oldt. I tells you what, Matt Hogan, vidow Dawson vas all vool, von, doo, dree, yard-sticks vide."

Matt looked curiously at Mr. Ghering, wondering which was the more interesting to Mr. Ghering—the meetings or the widow. But Matt was too well bred to chaff the boss, and turned the subject of conversation by asking, "Well, Misther Ghering, did yees take good care of me few swarms of baas while I was gone?"

"Not much," said Mr. Ghering; "the water haf let them alone, and so haf I. But, Matt, you will nefer want to look in the square face of a bee-hife again, after being so nearly drowned with them. You'll nefer succeed a pudering with those McBurger Dawson bees. They are efil-spirit possessed; no, mine cracious, I vill keep von mile away from them, and advise you to do the same."

Matt Hogan had a curious beaming in his eyes, as much as to say, "Which is the more dangerous—the stings of bees or the blushes of Mrs. Dawson?" But Matt, remembering his good breeding again, replied, "My friend Ghering, sure and that's where yees be off yer reckonin'; for of all the occupations of me life, there's nothing took hould of me so strong as the kaaping of baas an' the creatin' of the beautiful honey; an' though the little darlints sting me from head to foot, though with them I go



into the river an' under the river, though me clothes are torn an' me bones crushed, an' if spirit-haunted an' divil-possessed, with them I'll for ever take me stand, me beautiful baas."

Last month was the warmest November in many years, according to the Weather Bureau. It has been a good time to get bees into winter quarters, and I hope that by this time the bees have been safely housed.

The Michigan State bee-keepers will hold their annual convention Jan. 1 and 2 at the Doniphan Hotel, Mount Pleasant. Rates, $1.00 a day. The first session will be on the evening of the 1st. There will probably be half fare on the railroads.

The evidence is now so full and complete, that it does not seem to me there can be any question that birds of various kinds have been making the pinhole punctures that have been laid at the door of the bees heretofore. Honey-

producers should not fail to impress this fact upon their fruit-growing neighbors. The use of the shotgun or rifle at the proper season of the year will destroy as well as scare away the real culprits, the birds.

IN my editorial on page 865, in criticising Mr. Newman, especially for his non-action regarding dishonest commission men and adulterators of honey, I did not overlook the splendid work he had done in the past in the line of defense of the rights of bee-keepers; and although I did not refer to it in that particular editorial I have done so on other occasions, so that I am sure our friends may know how I feel about it. The defense issue was good in its day, but there are other issues tenfold more important.

WE have had some call of late for a honey-leaflet. As GLEANINGS has never had one, I requested Dr. Miller to get up something of the kind. It will not only contain information in regard to honey for the general public, its dietetic value, how to liquefy the candied article, etc., but will give recipes for cooking that have been thoroughly tested.

This leaflet will be sold at a trifle above the cost of printing, so that honey-producers may have them for free distribution to their trade and customers.

A very interesting illustrated article, written for the general public, on the subject of bee-keeping in the city, appears in the *Illustrated Buffalo Express*, from the pen of Rev. E. R. Hardy. The pictures are half-tone reproductions from real life, and a cursory reading of the article itself seems to show that Mr. Hardy is well up on the subject. So many of these articles, written for the public press, come from men who have gained their knowledge almost entirely from books, that it is most refreshing to read occasionally such an article as this that has been prepared by a real live practical bee-keeper.

THE firm of George T. Wheadon & Co., of Chicago, is no more. After fleecing bee-keepers of their honest hard earnings (see *Am. Bee Journal*), it appears that the chief man of the concern has fled to Canada. Bee-keepers need to be warned that there are other concerns who are likely to fleece them in the same way. Better get a little less price, and deal with a reliable firm whom you know, than to trade with some concern you don't know that floods the country with "highfalutin" circulars, offering extraordinary inducements. You can set it down as a general rule, that the old reliable houses can do just as well as, and generally a little better than, the new ones, granting that the last-named are strictly honest. The old houses know the trade, and understand well the art of getting the best prices obtainable.

NOMINEES FOR THE NEW UNION.

IT is high time that we had a change of front and a change in the administration of the Union. It seems that a correspondent of the *American Bee Journal*, signing himself "Union," is of the same mind. Here is what he says:

The tone as well as the matter of Mr. Newman's "criticism" indicates to me that he proposes to stop all further proceedings toward amalgamation, and considers himself of much more importance than those who favor the measure, and while, only a servant, and handling our money, usurps authority; and I believe that just the moment any official puts himself in such a position, the sooner he is made to "step down and out" the better; and with that end in view I take the liberty of nominating Dr. C. C. Miller for General Manager for the coming year, and, for that matter, just as long as he proves himself efficient, and behaves himself; and, while I am at it, I want to renominate that faithful and safe counselor, Hon. R. L. Taylor, for President. I would like to nominate him for General Manager, but we can't spare him from the position he now occupies. Then let's keep G. M. Doolittle, Prof. Cook, A. I. Root, and Hon. Eugene Secor in the harness; and if the rest see as I do, we will put C. P. Dadant in the grand team; then if the new constitution should be submitted and adopted, in spite of Mr. Newman's opposition, we shall have a Board of Directors that has had years of experience, excepting Hon. Eugene Secor and Mr. Dadant, and they don't know so much but what they can learn from the other members of the Board!

Perhaps I have done mischief enough, but I feel like saying that, if the new constitution is not submitted to a vote by the Advisory Board, according to the request of the United States Bee-keepers' Union; or if the members of the Board attempt to defeat its adoption, I have paid my last dollar into the treasury of the National Bee-keepers' Union, but shall pay in the future into the treasury of the United States Bee-keepers' Union, and I know of several who feel the same way.

Of course, GLEANINGS is not seeking to put any of its own staff forward, but it does indorse most heartily the list of officers above proposed, with the exception of the name of our senior editor, who, I known, feeling that he has somewhat dropped his hold on bee-keeping, would prefer some other name put in his stead. With this exception the list is most excellent, and, in the language of the editor of the *American Bee Journal*, referring to the same list, I say, "Hurrah for the nominations made by the Union!" Let us not haggle over little details, nor waste time in explaining things further.

In regard to this, Mr. Hutchinson, in a very able article in the *American Bee Journal*, has this to say:

If we wait until a constitution is formulated in which no flaws can be found, amalgamation will never take place. It will be only by actual experience that we shall learn exactly what kind of constitution is needed. Without experience it is doubtful whether we get a up better one than the North American has now adopted—at least, not enough better to recompense for the delay. We need to get to work.

The duty of the present time is to see that the U. S. B. K. U. is perfected. When that time arrives I shall begin to feel that something will be done to forestall the dishonest practices on the part of unscrupulous commission men, and that something also will be done to prevent adulteration.

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Our indexes for this year's volume are unusually full and complete. We have added a new index—that pertaining strictly to editorial matter, not to speak of footnotes. Besides, there is the usual index of illustrations.

THE ABUSE OF THE CREDIT SYSTEM.

The editor of the *Progressive Bee-keeper*, commenting on what I said on page 789 regarding the relation of the manufacturer and the dealer, and the folly of giving indiscriminate credit, makes these very pertinent remarks, which I indorse most heartily:

It seems a little hard to say that a real good honest man should not enjoy the confidence due him of his neighbor, and that the deserving should not get what they really deserve. But the real trouble, the saddest truth, the most humiliating fact is, while one good honest man will do just what he says he will, and meet his obligations, nine others, slovenly, careless, devil-may-care fellows will not do so until they are dunned, bored, coaxed, and then perhaps will not pay at all. All this is what makes the credit-business unpleasant, very unprofitable, and a curse to the debtor as well as to the creditor.

I really believe some think that they accommodate a merchant by buying from him on credit as against not buying at all. This I believe to be an error. Speaking for myself, I would prefer not to take the chance of the credit system at all, only through the regular channels of trade with parties who have good ratings in the mercantile agencies, and who understand when they buy a bill of goods on thirty days' time, that it means thirty days, and not six months or a year. Again, it would seem that a man who is honorable, known among his neighbors as a man who would not abuse an accommodation, would better get that accommodation at home where he is known, than by humbling himself to strangers by asking for what he may be refused. Nearly all over this broad land there are banks and parties who loan money. Would it not be better, if you must go in debt, to get the money from them, pay them a little interest for the use of it, buy your goods for cash (getting the benefits of the discounts), maintain your dignity, uphold your good name, and be a man? There are some we know could not get accommodation at home, for the same reason that we have stated in the beginning of these remarks; but, dear friends, if you are one of this kind, we do not care to credit you either. We have some of your kind on our books now. We like to help a worthy, deserving man, but we must know him to be such before we extend our hand and our pocket-book.

BEES AND GRAPES AT THE MICHIGAN EXPERIMENT STATION.

Experimenter Taylor, it seems, has for some years been greatly interested in the production of fine grapes, growing as many as 30 different varieties. Observing the bees at work on some of the kinds at various times, almost led him to believe that the bees might be and probably were guilty of doing some damage.

This season he conducted a series of experiments, the results of which not only exonerated the bees, but actually proved that they were of great value in preventing the decay of sound grapes. He had observed that different varieties crack in different ways; "that is, some crack, so to speak, longitudinally and some crosswise, and that they also crack from a somewhat different combination of causes. These, as I judge, are three: moisture from without, moisture from within, and external pressure." The Ulster and Niagara had a skin of such toughness as to be able to resist these forces, but not so with the Delaware and the Lady; and during the past year the Dutchess and Salem have to be added to the list, owing to the wetness of the season.

To determine just what effect the bees did have, he put bags on some dozen different varieties in order to shut the bees out. A small slit was cut in the bottom of each sack to permit the escape of any water that might gain admittance. In all, there were upward of a thousand sacks put on the grapes. The result was tabulated, and Mr. Taylor, in the *Review*, concludes in this way:

In the case of the three kinds much injured, it became constantly more evident that the damage to those in bags was greater than to those to which the bees had access. This was especially true of the Dutchess and the Delaware. So evident was it that the reason of this lay in the fact that the juice oozing from cracked grapes in the bags was communicated to neighboring grapes causing incipient decay, a weakness of skin and cracking where otherwise cracking would not have occurred, that, by the middle of the month, I hastened to remove the bags from these varieties that the bees might gather the juice from the broken grapes.

To my mind the conclusion is inevitable, that not only do bees not injure grapes, but that by gathering the juices of cracked ones they prevent decay and thereby the destruction of sound ones.

SHAPE AND WEIGHT OF SECTIONS; TALL VS. THE SQUARE SECTIONS.

In the last *Bee-keepers' Review* there is an editorial under this heading. Mr. Hutchinson, during the past fall, has attended the fairs of several different States. He has met grocers and commission men, and has found that, almost without exception, the light-weight section had the preference. Much to his surprise the goods were almost invariably sold by the piece. While this was true, they were bought by the dealer by weight. It therefore followed that a thin section looked just as large as the old pound section; and being sold by the piece it netted the retailer a little more profit; that thin sections, or, rather, thin combs, were more quickly drawn out, filled, and sealed over.

In referring to the tall sections that have been receiving some prominence of late he says:

It may not be worth while to change the shape of our sections, but, under present conditions, a section an inch and a half in thickness, about three and a half inches wide and about five inches in height, used without separators, would be the one that would bring the most money. With separators, the width ought to be one and three-fourths, or seven-to-the-foot.

Then, there is the question of right and wrong. The whole thing is in line with the making of bottles with the sunken sides and raised bottoms, the bottles being used in selling flavoring-extracts, medicines, etc.; the making of berry-boxes with raised bottoms; the putting of the largest berries on top; "facing" barrels of apples with the best apples; putting the sections in a case next the glass etc. In short, it is putting the best side out.

The use of thin sections of *standard* size may be in a line with the making of bottles with sunken sides, but it is not altogether so, I am sure. The factor hinted at by Mr. Hutchinson, to the effect that a thin comb would be drawn out and filled quicker, has, I am sure, a great

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deal to do with it. For this reason, if for no other, the producer, in many cases, prefers the thin combs.

As to the tall sections (taller than broad), it does not seem to me that we can hardly conclude that it is in line with bottles with sunken sides. Those that Mr. Danzenbaker has been selling, while 1⅛ inches thick, hold very nearly a pound; and he contemplated making a section just enough thicker to make it hold an even pound. In any case, it would be just as legitimate to sell the 1⅛-lb. tall section as it was the old square section 1⅞, because they both weigh the same. It is not, then, because the tall sections *appear* to contain more honey, although that may have something to do with it, but because any thing taller than broad meets better with our ideas of taste. As I have said before, window-panes taller than broad look far better than square. For the same reason we have long panels in doors; and the doors themselves are taller than broad. Business-blocks of the same proportions look better than when both dimensions are the same. Even the oblong printed page that we are now reading is more in accordance with the accepted taste than one square. Capt. J. E. Hetherington, that shrewd bee-keeper—one whose colonies are numbered by the thousand, and the most extensive bee-keeper in the world, probably—finds there is a better market for the tall section in the East; but this might not be true of all localities.

Now, I am not arguing that we should change from a square to an oblong section; but I simply desire to give the latter due credit. The supply-dealers can make one section as cheap as another; but the rub is going to be that bee-keepers who are using regular standard L. hives will not find it so convenient for tall as for square sections. This is, in fact, the most serious objection of all. It may be so serious, indeed, as to bar out its use to any very great extent.

HONEY CARAMELS, ETC.

CHARLES McCULLOCH & Co., of Albany, N. Y., one of the squarest and cleanest commission firms who handle honey, have sent us two recipes in which honey is used, which they think will prove useful to our readers. Here they are:

HONEY CARAMELS.

These are made by cooking to "soft crack" two pounds of coffee A sugar, two pounds of clear extracted honey, and two pounds of glucose.

HONEY GINGERCAKE.

Rub three-quarters of a pound of butter into a pound of sifted flour; add a teacupful of brown sugar, two tablespoonfuls each of ground ginger and caraway seed. Beat five eggs, and stir in the mixture, alternately, with a pint of extracted honey. Beat all together until very light. Turn into a shallow square pan, and set in a moderate oven to bake for one hour. When done, let cool and cut into squares.

Bee-keepers hate the very suggestion of glucose, so I think they will be inclined to put in more honey and leave out glucose entirely in the first-mentioned recipe. If glucose is an ingredient essential to the good quality of the caramels, it will be the first instance that I have ever known where that article was of any use.

When Dr. Miller prepares his list of honey-recipes, I hope he will take these into consideration. In the mean time I know he will appreciate it greatly if our lady readers will report on the various recipes that have been given in our columns of late. We intend to put into the honey-leaflet only those that have been tested, and which are known to be first class.

ARTIFICIAL HONEY-COMB; THE PRODUCT MADE BY OTTO SCHULZ, OF BUCKOW, GERMANY.

ON pages 458, 538, and 788 I spoke of the great advantage that would accrue from the use of drawn comb in sections, and it will be remembered that I spoke of the experiments of B. Taylor and others. Later on, Samuel Simmins (see p. 779) and M. M. Baldridge showed that they had been using drawn comb in sections for years, and were satisfied that there was a great gain in the use of it. Seeing the interest taken by myself and others in this subject, Edward Bertrand, editor of the *Revue Internationale*, of Nyon, Switzerland, sent us a sample of the full-depth artificial comb manufactured by Mr. Schulz, as above. I had previously seen this comb; but it was so heavy and clumsy I doubted whether it would ever be a commercial success; but since that time I understand it is being sold in Germany; but just how much of it I do not know.

Well, let us take the piece in hand and examine it carefully. The sample is 2x2¼ inches, and one inch thick, and weighs ⅓ ounce, or just one foot to the pound. The cell-walls are $\frac{22}{1000}$ inch thick—that is, a trifle over $\frac{1}{50}$. The base is considerably thicker.

Let us now compare this with natural comb. The thickness of cell-wall varies from $\frac{3}{1000}$ to $\frac{4}{1000}$ of an inch. The base is a trifle more. These measurements make natural comb about 6 feet to the pound. The ordinary heavy brood is, on an average, about 5 feet; light brood, 7 to 8 feet, and thin foundation 10 to 11. It will be seen, then, by a comparison of these figures, that the Otto Schulz foundation, besides being clumsy, would be very expensive. It has six times as much wax in it as the natural comb, and anywhere from 3 to 4 times as much as comb built from foundation; and as these measurements were made with a very delicate micrometer I do not think there can be any mistake. If, then, I am correct as to the proportions, no bee-keeper of this country could afford to use such comb providing he expected to compete with other bee-keepers who use natural comb or that built from foundation.

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A careful examination shows that the comb was cast from a mold. This would preclude the possibility of making the article any lighter; for, even as heavy and clumsy as it is, it is very fragile. Cast wax is much more brittle than the drawn. If, then, the Schulz comb were made lighter it would not stand transportation. From a commercial and practical standpoint, both the method of making and the product itself must be regarded as a failure.

But from a scientific standpoint this comb is very interesting, because we are told it is accepted by the bees. It demonstrates that they are not particular how thick the cell-walls are. All that they require is that the cells themselves shall be large enough to accommodate the rearing of brood. In fact, we are told that wooden comb—that is, a board perforated with holes of the right size, has been used successfully by Mr. Aspinwall, of Michigan, in the rearing of brood.

In earlier times Capt. Hetherington, I believe, made a metallic wax-covered comb. This was also accepted by the bees for purposes of brood-rearing. All this goes to show that bees will accept almost any thing, providing that the cells are of the right size; but if we are ever to have an artificial comb that will compete with foundation, it *must* be sold at a price not very much in excess of that article, per square foot.

LAWRENCE BRUNER.

I HAVE before spoken of the lecture delivered by Prof. Lawrence Bruner before the North American convention at Lincoln, on the subject of "Wild Bees of Nebraska." I believe it is safe to say that bee-keepers never listened to a more interesting and scientific talk on the subject of bees. Prof. Bruner is one of the rising young men of the country, and one who is both able and willing to give bee-keepers material assistance in his department. Feeling that our readers ought to be a little better acquainted with him, I take pleasure in giving the following biographical sketch which I have secured.—

Lawrence Bruner, the subject of this sketch, was born in Catasauqua, Pa., March 2, 1856. In May of the same year his parents came west, and settled in Omaha. Later they went on a farm, where they remained till 1870, when they moved to West Point, Nebraska.

As a small boy on the farm, Mr. Bruner made the acquaintance of birds, insects, and plants, in all of which he took a great and peculiar interest. From early childhood he collected all sorts of natural-history specimens, but more especially insects. However, it was not until the age of fifteen that he began his systematic collection of the several orders of insects.

He entered the University of Nebraska when it first opened, in the fall of 1871. On account of ill health he was not able to continue his studies till his graduation. However, his spare time at home was spent in his favorite study, that of the nature and life-habits of insects. The region in which he lived was especially favorable to such investigation, and so the successes of his researches led him to further study. He also, at this time, did considerable taxidermy work, thereby learning a great deal about birds and other animals.

In the summer of 1878 Mr. Bruner had the good fortune to accompany a friend and his two sons on a trip to Idaho—a trip taken for the especial purpose of studying nature. While in Utah he became acquainted with a member of the U. S. Entomological Commission. Two years later, through this friendship, he was made entomological assistant. His residence was now at Washington, D. C. In the course of two of three years he was given charge of the grasshopper or destructive-locust investigation for the entire United States. While in this work Mr. Bruner made several extended trips into British America, through various parts of the Rocky Mountain region, in the Southwest, and other places. He took a trip to Mexico, also, for the express purpose of studying insects destructive to the orange industry, and was successful in learning the life-histories of several important species.

PROF. LAWRENCE BRUNER.

In April, 1888, Mr. Bruner was called to the University of Nebraska as experiment-station entomologist, and instructor in entomology. He retained at the same time, however, his connection with the U. S. Department of Agriculture as field agent.

During all this time Mr. Bruner had continued his study and collection of birds and insects. His private collection of North American orthoptera is probably the largest extant.

Mr. Bruner is, at present, professor of entomology, ornithology, and taxidermy, in the University of Nebraska; and under the university-extension work he delivers lectures throughout the State, from time to time, on practical entomology.

Prof. Bruner has written some careful and helpful works on his particular subject: Birds of Nebraska; Tree-claim Insects; Insect Enemies of Indian Corn; Insect Enemies of the Grapevine; Introduction to the study of Entomology. Besides these papers he has contributed various articles to scientific journals and societies.

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One may travel and keep his thoughts to himself, or he can be sociable and form many pleasant acquaintances. To confess the truth, it is a little hard for me to make advances among entire strangers; but I have so often been rewarded for so doing that I ought to profit by past experience. As we neared New Orleans the man in the berth above got down and sat beside me. Somehow I got the impression from his looks that he and I had no ideas in common, and that it would be of no use to get acquainted. I will not tell you what other thoughts Satan suggested; but a better spirit finally prevailed, and I said something, just because I felt a Christian *ought* to say something. What do you think? Why, it turned out he was a prominent business man in an Ohio city, and not only a temperance business man, but a supporter of the Anti-saloon League of Ohio. He needed just the encouragement I could give for him to continue his support to the cause; and as we separated he remarked that it had given him much pleasure to make the acquaintance of one whom he had known before only by reputation. Suppose I had listened to Satan!

After he left, as the car was crowded a young lady was placed in the seat opposite. Now, although I am, as a rule, favorably inclined toward young ladies, Satan whispered that I "had better keep my mouth shut." After we had sat facing each other for some time in silence the better spirit suggested I should at least give her an opportunity to talk. She proved to be a teacher in Southern Louisiana, and very soon we were chatting as old friends that had just met. After a little urging she consented to share my lunch, and so we breakfasted together. I gave her the last GLEANINGS containing the story of the Idaho schoolma'am; and when we bade each other adieu it was in truth a parting with a friend and comrade in the battle for truth. Dear friends, what woul be the result to the world if the men and women "who love righteousness" could clasp hands oftener in this never-ending battle against iniquity? Who does not feel more courage after these brief acquaintances that give us glimpses of another comrade in the field?

There are, it is true, "ships that pass each other in the night;" but it is also true there are many that need *not* pass in the night (or day time either) without a friendly hail; and this hail need not delay either, but, on the contrary, help both of them along on life's voyage.

At New Orleans I was met at the depot by our good friend J. W. Winder, who very kindly pointed out the improvements made since my visit four years ago. Electric cars now take the place of the horses and mules; and from the amount of business they are doing it is hard to imagine how New Orleans could do without them. The cars follow each other so closely on the busy streets that you can find the car you want almost always in sight. The Louisiana State Lottery, that was so prominent everywhere four years ago, is now gone out of *sight* (at least), and, we trust, for ever. Of course, other things in the line of gambling are still there, but we hope for more triumphs.

Friend Winder has about 200 colonies of bees in one yard about three miles out of the city. His yield of honey during the past season was from 20 to 25 lbs. per colony. I think it would have been larger if the number were divided and placed in two or more localities. He thinks not enough more, however, to pay for the extra expense. His honey, rather dark in color, brings about 50 cts. per gallon, and thus competes with best New Orleans syrup. He says there is a great quantity of glucosed honey sold in the city. The mixers want a dark honey of very strong flavor for this purpose. The glucose makes it white enough, and tones down the strong flavor. Nothing has been done in this State, so far as he knows, to punish or restrain adulteration. Friend W. keeps pure honey at different points all over the city; but the mixed is cheaper, and so sales of the genuine are slow.

Dec. 4th.—We found ice on the water beside the track almost to Houston, Tex., early this morning, but it is now quite warm in the middle of the day.

We just passed a train loaded with huge iron tanks, labeled "Southern Cotton-seed Oil." If this is sold under its true name, I presume it is all right, whether used for food or for other purposes.

Between Houston and San Antonio we pass vast fields of both cotton and sugar-cane; and the smoke pouring forth from the great sugar-mills looks like business indeed. The vast expanse of prairie, where one can see quite distinctly 20 miles or more, will always move me with a feeling of inspiration, I presume, no matter how many times I see it. A friend who often sits near my elbow when we work together at home has called the "book of Nature" one that makes no mistakes, and always tells the same story. I wish he were with me now. He would find the leaves of the book here surely broad enough.* Our 13-year-old boy Huber has a fashion of eating his meals with an open book before him, reading while he eats. Well, that is just what I have been doing; but my open book is out of the open car window.

DOORYARD DECORATION.

At almost all the stations along the Southern Pacific we found some very attractive work in the way of decorating the yard with white stones. These stones are arranged so as to mark out the paths and flower-beds; and at some places stars, circles, and crosses are artistically arranged with rows of stones. When white stones can not not be had, get cobble-stones and dip them in whitewash. They can be readily seen after night, so as to keep people off your plants.

Some one has spoken of the present "epidemic of crime." This morning some one got into our car and stole the whole of the tickets belonging to the passengers while they were in possession of the conductor of the sleeper. The thief then threw them off the train, calculating to get them or have a confederate do so; but some one found them, carried them to the nearest station, and wired ahead. As it is, I expect to find my ticket waiting for me at San Antonio after I have finished my visit at the Atchleys.

Later.—New tickets were made out for us by the railroad company on our arrival at San Antonio.

San Antonio.—As the train was late, I did not get here until night, and I began to have that same feeling I have so often in traveling, "a stranger in a strange land." For a time I rambled about and began to feel homesick just because I didn't *know anybody*. I stepped into a bicycle store and arranged for a wheel in the morning, as my train for Beeville didn't leave

* I have heard him say that sometimes he felt like shaking hands with every weed (even the humblest) he met. Out here on the prairies he would find a big job of "hand-shaking."

until afternoon. The gentlemanly proprietor dropped his business to tell me about an old acquaintance I wanted to find, called him up through the "phone," then took me out for a ride on a new "Companion" bicycle. This machine, while it has only two wheels, carries two people side by side in just the nicest way for a "visit," and *one* of them need have no skill or practice at all. Mr. W. E. Roach, the owner, finally took a man weighing over 200, who had never been on a wheel, and took him around as nicely as could be. I really believe this arrangement is going to open a new era in cycling.

Dec. 5.—I have just ridden several miles on the new wheel, and tested it over quite rough roads, and it is all its name implies, and all that is claimed for it. Friend R. contemplates using it to show travelers over the city. He does quite an extensive business renting wheels; and with the new one a guide could go along and give lessons in wheel-riding, and at the same time show all the points of interest. For circular in regard to the wheel, address W. E. Roach, 307 W. Commerce St., San Antonio, Tex.

Our wheelride was to a beautiful spring a little out of the city. The water is beautifully clear and pure as it gushes forth into several circular rocky basins. Speckled trout, bass, and other handsome fish dart in and out of the rocky crevices. As no fishing is allowed, they are very tame. A water-plant, with bright-green round leaves, grows in the bottom. The water seemed quite warm, but it was a very cool morning. My friend says that, in a hot summer day, it seemed very cool and nice to drink.

San Antonio has numerous artesian wells, and, in fact, the city is supplied from these. Some of them are hot enough to supply the city baths. One well, when first drilled, sent a 10-inch column of water 30 feet high. It was brought under control, and now fills the city mains with water under pressure, soft enough for washing, drinking, etc. By the way, I forgot to mention that in New Orleans they have numerous artesian wells also. I wonder if the various towns and cities that find these precious stores of pure water, without even the need of pumping it up, always remember to "praise God from whom all blessings flow."

Mr. D Ainsworth (a Medina boy years ago) overtook us on our wheelride, and I took a seat in his buggy, leaving my good friend R. to run his double wheel home alone. San Antonio has one of the finest military posts in the way of grounds and buildings in the United States. The establishment is on a beautiful rise of ground, and we were so fortunate as to be present during the artillery and cavalry drill. I kept wishing Mrs. Root could be present, as she is always so much in love with fine trained horses. As they bounded over the beautiful grounds, accompanied, in response to the bugle call, with other military music, it made one think of the carnage of battle. May God forbid that either men, horses, or *cannon* should ever be needed for such work again. I don't know but that I have fallen in love with San Antonio and its 40,000 to 50,000 people just a little.

The only farming crop in this region is cotton. This they grow, and depend upon buying every thing else. Near the cities there are truck-gardens that depend on irrigation; but cotton needs no irrigating, and so in the country there are no gardens, or almost none.

Dec. 7.—I reached the Atchley plantation Saturday night, just at dark. I call it plantation, for no other word seems to describe it. Three years ago they located here, 2½ miles out in the country, that they might have room for their apiaries, and also that their family of children (*nine* at the present time) might be brought up away from the dangers of the town. As ground room is cheap, their buildings are all one story; and in order to have plenty of room and abundance of ventilation on all sides, their home building extends out pretty long, and the rooms are all separated by broad porches or covered passageways. In these warm climates the cooking-stove is kept well away from the dining and all other rooms. The buildings are all new and well finished; in fact, it is hard to understand how they have been able to do so much in just three years, even if there *are* nine of them, children and all.

Bees are everywhere. A log "bee-gum" stands by the porch, another hive on the porch; bee-hives all through the front and back yard; and as I write I am cheered by the hum of busy workers going out and in a hive that has stood for months close beside the office door, the bees going in and out through the open door. Now, this door is a busy thoroughfare all day long; but the bees watch their chances and dodge between your feet, sometimes a yellow shower of them waiting for people to get out of their way; and then the joyous hum as they gain the entrance! Why, it sent me back to years ago when I spent hours studying and listening beside an observatory hive. These bees never sting; they have become so accustomed to the business of the office that they take it as a matter of course. Tell me that bees can't be tamed! Why, I could sit here for hours and enjoy watching them.

Now, friends, here is a plan for a house-apiary: Make a little building, say 12x14 feet, and have a door at each end. Set 6 hives on each side, right on the floor. Open the doors every morning when it is warm enough, and close them every night. Don't have any windows, and you have your house-apiary complete.

This hive I am speaking of was started by accident with only a handful of bees. They came through the frosty and cool nights all right, because there is a little fire in the office almost every day, and they are now gathering honey when almost all the strong colonies outside are idle because the morning is too cool. The gentle heat from the fireplace near them sends them out at the open door an hour or two before the rest.

Here I am talking about this one hive of bees when I have not shown you round outdoors at all. Well, right out by the road is the hive-factory. It was after dark Saturday night before the whistle blew for shutting down. The Atchleys have discovered the advantage of filling orders promptly, even if it does require getting up before daylight and working after dark. Of course, the factory is not very extensive, but every thing is neat and in order. The arrangement of their building facilitates this. The office where I sit writing is far enough away so as to be safe from fire if the factory burns. The printing-office is also a separate building. A shaft carries power from the factory. The latter is not insured, because it can not be done down here for less than *ten per cent.*

Mrs. Jennie Atchley, who now sits by my side writing, is a very hard-working woman. I have been pleading for a little vacation for her. She not only raises queens, but she goes into the factory and makes the queen-cages herself. In building their house she sawed off the boards and nailed them on, doing a large part of the inside finish. When we consider that at the same time she looks after *nine* children, the youngest (Jennie Bee) only 14 months old, we can realize something what this woman has done. Mr. Atchley himself is the *scholar* of the family. All correspondence, and all that is

written for publication, is expected to be revised by himself. In fact, since he has had the typewriter the most of it has been re-written by himself.

In GLEANINGS for Oct. 1, 1893, will be found an excellent picture of the Atchley family; and in the issue for Aug. 1, 1893, will be found a picture and sketch of Willie Atchley. Miss Amanda, the eldest, is her mother's "right hand," and it is she who makes the candy for the queen-cages that carries queens so successfully all over the world.

HOW TO SAVE ALIVE THE ORPHAN CHILDREN OF MARTYRS IN ARMENIA.

[We take pleasure in giving below a few extracts from a tract which is being published by the National Armenian Relief Co., having its headquarters in Bible House, New York.

The tract sets forth the need of the thousands of Armenian children left by the Turkish massacres in utter destitution, and proposes a plan for their rescue, not only from present extreme distress, but also from Turkish Mohammedanism in the future.

In our first number this year we published an appeal for the Armenians in general, which was generously responded to, and over $100 was forwarded; but the exigencies of the case demand continued effort; and especially this plan to save the lives of the children, I am sure, will appeal to the hearts of all our readers, and they will be glad of an opportunity to make some sacrifice in its aid.

It may be that the Powers will soon put a stop to this awful carnage; but in the mean time the sufferers must have help. Just read these facts.—ED.]

THE SITUATION.

It is now more than two years since the massacre of peaceable, industrious Armenian Christians in Turkey began. A region 500 miles long, and 300 wide (large as New England, New York, and Pennsylvania), with hundreds of villages and cities, has been given over to murder, rape, and robbery. The survivors, 300,000, largely women and children, are utterly impoverished.

One of the saddest results of the massacres in Armenia is the helplessness of thousands of orphan children, some of whom have lost both parents by death.

Miss Clara Barton's official statement says: "Without outside support, at least 50,000 of these persons will have died of starvation, or perished through accumulated hardship, before the first of May 1897."

[From the letters of missionaries on the field, we gather the following:—ED.]

"Our relief so far has been simply to keep the people alive; and how near the brink of starvation they have come you can judge from a village which I visited to-day. It was formerly a village of about 150 houses. Perhaps 15 remained. In some houses there was a little bread. In all there were little bundles of grass, which is now their principal food. The faces of the women and children are emaciated and yellow. I asked one little boy if he had eaten bread that day, and he replied "No;" he had eaten only grass. When we sat down on the ground, surrounded by most of the villagers, some of the children were all of the time pulling up grass, and eating it, roots and all. So far as I can judge, there are only a few days between the people and starvation. The people meet us with a look of pleading, and ask, "Is there no hope for us?" I pass the question on to you.

My heart is sick and faint with the pressure of want and misery which we can not relieve.

Two or three cents daily will feed one person, while one dollar will go a long way toward clothing an individual or furnishing the winter's fuel for a family.

Moreover, the establishment of orphanages under missionary supervision would utilize our large mission plant and put our work on a footing difficult of attack by either Turk or Russian.

It is not necessary to construct, at large expense, orphanages into which children can be gathered in great numbers, and which might obtain the opposition of the government. All through the stricken districts there are yet standing a large number of houses belonging to native Christians, which, if properly systematized and arranged, will easily accommodate from ten or fifteen to forty or fifty orphans; these houses could be secured.

For additional help, if necessary, the land is full of Christian widows who would gladly give their services night and day living with the children in return for a safe home.

We know full well from the past that the Turks will make every endeavor to bring these children into their homes, in order to secure them for the future. It is very apparent that the Lord is opening the way for immediate missionary effort along the line of protection for the orphans of that country. The general evangelistic work has been hampered; many of the schools are broken up; but here is a work, broader than any thing which the missionaries have engaged in hitherto, lying ready to be taken up.

In view of the fact that the Turkish Government will not allow the orphans to be removed, provision must be made for them where they are.

Orphanage shelters can be located, as needed, at the twenty distributing centers, where the work of relief is now being carried on by American missionaries, with the co-operation and help of British consuls.

Money given in connection with the orphanage-shelter scheme will not be used for the erection of buildings, but for providing food, clothing, care, and temporary shelter for orphans and destitute children.

The expense of living varies in different parts of the country; but one dollar a month will, on the average, provide the bare necessities of life.

$12 will provide the support of one orphan for one year.

$120 will provide the support of ten children for one year.

$1200 will provide the support of 100 orphans for one year.

The supporting of orphans will mean in many instances the relieving of widows as well, as in many villages five or ten orphans may be entrusted to the care of a Christian widow, who by this means will earn her own livelihood.

HOW CAN THE NEEDED AMOUNT BE SECURED?

There are persons of wealth who may be willing to assume the support of the orphanage shelters of one center at a cost of $12,000.

Various organizations, such as Young People's Societies of Christian Endeavor, Women's clubs, King's Daughters' circles, Woman's Christian Temperance Unions, Young Men's Christian Associations, might each undertake, by subdivision of the work, to secure through its members the support of the orphanage shelters at one center, each local society undertaking the support of one or more orphans.

The sum required could be raised through the coming year, and paid month by month, in installments.

CHRISTMAS GIFTS.

If Christians whose hearts are touched by the story of this need would *this year* refrain from giving *Christmas gifts* to all (or all but a very few) of their friends, and give the money thus saved a birthday gift to Him whose birth they celebrate, to be used for the relief of the starving children in Armenia, *tens of thousands of orphans* would by this means be saved alive, and the givers would win the approval of Him who has said, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

The missionaries being surrounded, as they are, by thousands of homeless, helpless, starving people, can not endure the sight of such suffering unless they have means on hand to give some measure of relief.

How can they stay at their posts to mock, by their presence, these suffering people? Their courage and health will give way, and, with breaking hearts, one by one, they will be forced to leave their own and return to this country. The Turks will then have the Armenians, in those places, in their power, and their triumph will be complete. If

the light of the gospel is thus allowed to go out in these centers, what hope will there be for the evangelization of the ten millions of Mohammedans in that land?

By raising a speedy relief fund we can avert this unspeakable disaster, sustain the courage of the workers, save alive and protect the children of that country, who are the hope of Armenia; and relief, furnished in the form we have suggested, will mean not only preservation of human life under decent conditions, but the molding of character for all time.

WHERE TO SEND MONEY.

Send all orphan funds marked "Relief for the Armenians," to Brown Bros. & Co., Bankers, 59 Wall Street, New York, who will return receipt. They are the authorized treasurers of The National Armenian Relief Committee.

Money intended to reach and benefit the Armenian sufferers should in no case be handed to Armenians or others who claim to be lecturing "for the cause," but should be sent direct to the proper authorized treasurers. This caution to the benevolent but unsuspecting public is made necessary by numerous complaints already received, and applies to money intended for the general relief work as well as to orphan funds.

HOW TO GET LITERATURE.

Literature for use of speakers, leaflets of various kinds for distribution, collecting cards and dollar wheels, may be had in any quantity free of charge from Rev. F. D. Greene, General Secretary, 63 Bible House, New York.

For further information regarding the scheme for the relief of orphans, write to the Misses Mary and Margaret W. Leitch, 120 Bible House, New York.

Remember to send your funds to Brown Bros. & Co., bankers, 59 Wall St., New York City.

TEMPERANCE MATTERS.

In the daily papers for Nov. 23 mention was made of a terrible fight in Cleveland, which lasted half an hour, in spite of any thing the police could do to stop it. The origin seemed to be that one man, in going down hill hurriedly, ran against another man going hurriedly *up* hill. Instead of apologies, as we might expect, both men began cursing each other. Blows followed curses, then one whipped out a knife, and a by-stander interfered to prevent danger from the use of the knife. Then others took sides until thirty or forty were fighting. The papers state that many entered into the affray without knowing the cause of it, or the side on which they were fighting. When the police had massed together in sufficient numbers to stop the knifing and pounding, two or more men were so badly hurt that they will die, and a dozen or more are more or less hurt. At the close of the scene a great burly man of some foreign race was swinging a tremendous club, and mowing down friends and foes indiscriminately. The first account of it gave no reason further than the above; and I fell to wondering. "Has Satan really broken loose according to Bible prophecy, or is it because we have so many ignorant and unprincipled people massed together in our large cities?" For 24 hours I said to myself, again and again, "Can it be possible that we have people in these United States of ours who would get into a quarrel, and use knives in this way, for a whole half-hour, with no other provocation or cause than the trifling every-day occurrence of one man running against another?" Then I began to fear more terrible things were threatening us as a nation just now than even the most fearful were aware of. When the daily paper of Nov. 24 was thrown on our porch, however, I understood all about it, and the matter seemed plain and clear. Here is what my eye struck upon:

The principal cause of the riot was the fact that the unruly part of the population of Franklin Avenue Hill consumed several kegs of beer Sunday afternoon, and also copious quantities of other stronger intoxicants. They were therefore in fighting trim by Sunday evening.

I drew a long breath of relief—not because I felt any better in *one* sense of the word, but because there was a plain, clear *explanation* of this before-seeming wonder Now, this murderous riot did not occur because the inhabitants of that locality were Hungarians, Slavs, Polacks, or Irish, or any thing of that kind. It came about because they were permitted to drink themselves *crazy* during the whole afternoon of God's holy day. No wonder they fought with each other, and did not know friends from foes. Why, the same thing might be expected to happen in our town, or in any other place in the United States where we could find a crowd of people with the disposition to drink, and a state of morals that would permit them to drink unhindered.

In the first report, occupying the greater part of a column, not a word was said about intoxicants. I read the whole over repeatedly to see if this was not at the bottom of the mischief. Either the reporter did not know of it at the time, or else he did not seem to think that the fact that quite a crowd had been drinking beer all the afternoon had any thing to do with the terrible carnage.

THE ORIGIN OF MAULE'S THOROUGHBRED POTATO; SOMETHING FROM MR. W. H. MAULE HIMSELF.

Mr. Root:—In answer to your request as to some data in regard to the origin of Maule's Early Thoroughbred potato, I take pleasure in giving you the following information:

The origin of this potato dates back to 1884, when a seed-ball was picked in a field of so-called Pedigreed Early Rose. The seeds obtained from this one seed-ball were planted in the spring of 1885, and all those that promised well were sorted out in the fall and planted in the spring of 1886, and again selected in the fall of 1886. There were then seven promising types, which were guarded carefully, and all planted in the spring of 1887, side by side, all under the same treatment and conditions Among them was found one that, in growth of tops, was entirely distinct, being smaller than any of the rest, and in general appearance resembling the Queen in growth of top, and appearing not at all likely to produce a good yield of potatoes. We were surprised, however, on digging them, to find that they outyielded all the rest, having tubers of the Early Rose color with somewhat of a purplish tinge, many of which showed a tendency to resemble Early Ohio in shape. It was right here that the idea of a valuable find in the way of an improved Rose potato suggested itself. If we could produce a Rose potato, similar in shape to Early Ohio, with small tops, that would enable the planter to plant rows much closer than ordinary varieties, and in addition prove itself a good yielder, we should have without a doubt an ideal heavy-cropping early rose-colored potato to take the place of the old Early Rose, which does not begin to yield a sufficient number of bushels of potatoes per acre for profit.

The next six years were spent in developing the Early Ohio; and as the type developed, so did the yield; and in the fall of 1894 we dug 20 bushels and 17 lbs. of what we consider the best all-around early potato ever introduced. I offered to my customers in 1896 the product of these 20 bushels and 17 lbs. of potatoes under the name of Maule's Early Thoroughbred; and any one who claims to have had this same potato to offer in 1896, and did not procure them from me, did not have Maule's Early Thoroughbred.

As you are probably aware, another seedsman

offered a potato last year under the name of Thoroughbred, which he had a perfect right to do if he wished; but they were not Maule's, as was proven by more than a dozen tests in different parts of the country, as the Western Thoroughbred had larger tops, and of a more whitish color, besides being a longer variety.

I might also add that, notwithstanding the demoralized condition of the potato market last spring, and the fact that, owing to the limited supply, I had to offer the potatoes at a very high price, the demand was something unprecedented, as I sold every potato I had on hand.

I might also add that, last spring, after our catalog was out, Mr. J. W. Baker, of Tiskilwa, Ill., wrote us in regard to Thoroughbreds, stating that some years previous he had sent us a potato for trial under the name of Thoroughbred. On looking into the matter we found Mr. Baker had sent us a potato for trial he called Thoroughbred; but Mr. Baker's potato had nothing whatever to do with Maule's Early Thoroughbred; and had we remembered, when we named Thoroughbred last fall, that a potato had been sent us for trial under this name, we would never have named our new potato Thoroughbred. This was the one unfortunate incident in the naming of the Thoroughbred; but as we did not hear from Mr. Baker until long after our catalog was out, we could, of course, do nothing then in regard to changing the name. So far as we know, Mr. Baker's potato has never been introduced.

Philadelphia, Pa., Nov. 27. WM. HENRY MAULE.

As there had been several queries in regard to where Maule got this new potato, not only last year but this, I have thought best to give you the above for publication, and I hope it will settle the matter.

We clip the following from the *Rural New-Yorker:*

THE BEST STIMULANT.

The bicycle could not have made its appearance at a more opportune moment, says Susan S. Fessenden, in the *Ladies' World*. Every thing that tends to produce more healthful bodies will create more normal desires and appetites, and reduce abnormal craving for stimulants. What temptation to resort to artificial stimulus has the person who can enjoy the inspiration of a ride through the bracing air, filling the lungs, setting the blood to coursing through the veins, giving life a charm that discounts the devitalizing narcotics and debauching stimulants? In this new mechanical friend, the rising generation has, in some degree, an offset to the depraved hereditary cravings and weakened will power engendered by a generation of smokers and drinkers. Let us rejoice over each one of the hundreds of thousands of bicycles that find purchasers every year.

HANDY PATCHER.

54 sq. inches "**Mending Tissue**" for binding or mending fine Silk and Dress Goods, Kid Gloves, Umbrellas, &c. Does NEAT, strong, invisible work in a fourth the time of needle and thread.

15 square inches fine **Transparent Adhesive Paper** for mending books, documents, bank bills, etc.

9 sq. inches **Best Medicated Court-Plaster**, white, flesh, and black, for cuts, burns, &c., &c.

All inclosed in neat **LEATHERETTE** pocket-case, with full directions, and price in gross lots.

You can make money selling these around your own home. **A neat**, useful present that every one can afford. Sent by mail to any address for 12 cts. HANDY MANUFACTURING CO., 432 Lafayette Ave. Detroit, Mich.

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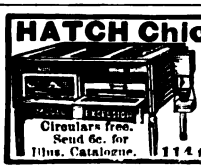

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A BARGAIN IN BEE-KEEPERS' SUPPLIES.

Is when you get { The best quality of goods, At the lowest prices, And get them prompt, And with small freight charges.

This is just what we can do by our 1897 customers. Estimates cheerfully given on any bill of goods wanted. Special inducements for early orders. Address JOSEPH NYSEWANDER, Des Moines, Iowa.

Labels, Honey Jars, Shipping Cases, Cartons, and a Full Line of SUPPLIES.

I. J. Stringham, 105 Park Place, New York, N. Y.

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An Honest Machine, Honestly Built, Sold Under a Positive Guarantee.

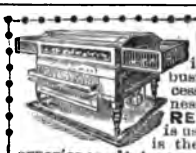
New Double Regulator; Model Egg Tray

"NEW AMERICAN."

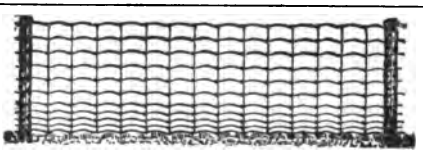
Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.



INCUBATION is the first step in the poultry business and much of future success depends upon its completeness. There is no failure where RELIABLE INCUBATOR is used. It is fully warranted and is the product of twelve years of experience. It has never been beaten in a Show. It is not like its competitors—it is better. We tell why in new book on poultry. Send 10c for it. RELIABLE INCUBATOR AND BROODER CO. QUINCY, ILLS.



Our Fair Exhibits.

With five car loads of wild animals, we have given free shows at the leading State and District Fairs. We thus furnish instruction, amusement, and proof that the Page is the best. Several applications are in for next year's exhibit.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial. Catalog Free.* 1-24ei

SENECA FALLS MFG. CO., 44 Water St., Seneca Falls, N Y

EARLY-ORDER DISCOUNT.

After this month the early-order discount, which has been customary for some years past, will be discontinued. The discount for the remainder of this month will be 4 per cent. This will not apply to sections nor to foundation at the new scale of prices published herewith, nor to honey-packages, but to hives and other bee-keepers' supplies for next season's use. This notice applies to dealers as well as to consumers.

REVISED PRICES ON WEED NEW-PROCESS FOUNDATION.

For next season we have adopted a new scale of prices on comb foundation, making less difference in price between the different grades. The revised retail price list is as follows:

Grade.	Size in inches.	No. sheets in 1 lb.	Price in lots of 1 lb.	10 lbs.	25 lbs.	50 lbs.
Medium brood,	7¾x16¾	6	45	43	41	40
Light brood,	7¾x16¾	8	47	45	43	42
Thin surplus,	3⅞x15½	26	52	50	48	47
Ex. thin "	3⅞x15½	30	55	53	51	50

The above are regular L. sizes. Other sizes made to order. Larger quantities and prices to dealers quoted on application.

ADVANCED PRICES ON SECTIONS.

We have adopted the following prices on section honey-boxes for 1897, taking effect at once:

Less than 250, ½c each; 250 for $1.00.
500, $1.75; 1000, $3.50.
2000 at $3.25; 3000 at $3.00.

Larger quantities quoted on application.

No early-order discounts allowed.

No. 2 sections, 50c per 1000 less than No. 1.

Four-piece dovetailed or nailed sections, 50c per 1000 extra over one-piece

One-piece sections, other than 4¼x4¼, 10c per 1000 extra for each additional inch or fraction thereof by which they exceed in size the 4¼, measuring full length before folding, and 50c on each lot for setting machinery.

We rather overshot the mark in low prices the past season, and do not care longer to do business for glory, without any profit. The high standard of excellence demanded in this line of goods can not be maintained at the prices which have ruled the past season, without loss to the manufacturer. We therefore return to more remunerative prices.

HONEY FOR SALE.

We have engaged about all the honey we can handle for some time, unless there are some desirable lots of fancy comb or choice extracted honey to be had in exchange for supplies.

We offer last year's alfalfa honey in 1-gal. cans, 6 to the case, at $4.75 per case; lots of two cases or more at $4.50; 5-gal. cans, 2 in a case, at $7.50 per case. We have only a few cases of each left, and, of course, can not duplicate these prices when this is gone. Choice basswood or willow-herb honey in 60-lb. cans, 2 in case, at 7½c per lb.; 2-case lots at 7c.

Buckwheat honey in 60-lb. cans, 2 in a case, at 5c per lb.; 2 case lots or more at 4½c, f. o. b. shipping-point in New York where produced. Buckwheat comb honey by the crate of 150 to 200 lbs. at 9c per lb., f. o. b. New York shipping-point. Choice white comb honey, direct from Michigan points, at 13c in crate lots of 150 to 200 lbs. No. 1 white at 12c; amber at 11c. If in need of honey, write us and we will quote on such grades and quantities as you name.

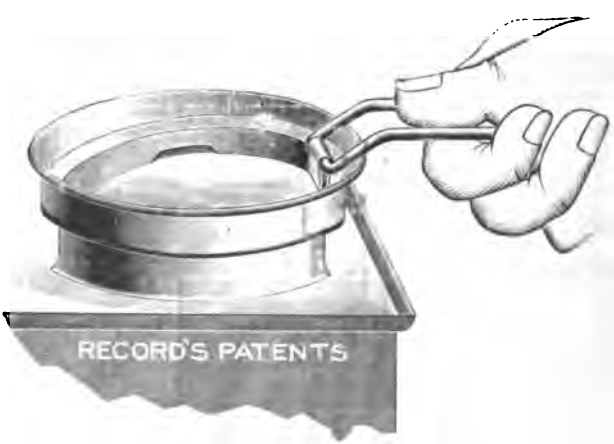
WIRE NAILS LOWER.

There has been a change in the scale of prices on wire nails, a new card having been adopted by the manufacturers Dec. 1. With the collapse of the nail trust, much lower prices are ruling. Our revised table of prices on standard wire nails, cement-coated, is as follows:

Style.	Length.	Wire Gauge.	No. Nails in 1 lb.	Price of 1	10	Keg.
2d fine.	1 in.	No. 17	1440	8	60	$4.00
3d "	1¼ "	" 16	1000	7	55	3.70
4d box.	1½ "	" 15½	550	7	50	3.50
5d "	1¾ "	" 14½	366	7	50	3.50
6d "	2 "	" 13	250	6	50	3.35
7d "	2¼ "	" 13	236	6	50	3.35
8d "	2½ "	" 12	157	5	45	3.25
9d "	2¾ "	" 12	130	5	45	3.25
10d "	3 "	" 11	107	5	45	3.15
4d casing.	1½ "	" 15	550	7	50	3.50
6d "	2 "	" 13	250	6	50	3.35
8d "	2½ "	" 12	157	5	45	3.25
3d common.	1¼ "	" 15	615	6	50	3.45
4d "	1½ "	" 13	322	6	50	3.30
5d "	1¾ "	" 12½	254	6	50	3.30
6d "	2 "	" 12	200	5	45	3.20
7d "	2¼ "	" 11½	154	5	45	3.20
8d "	2½ "	" 10½	106	5	45	3.10
10d "	3 "	" 9½	74	5	40	3.05
16d "	3½ "	" 8	46	5	40	3.05
20d "	4 "	" 6	29	5	40	3.00

RECORD'S NEW LEVER SEAL.

Some over a year ago we called attention to Record's new tight-seal cover pails which we offered for sale in various sizes, and listed in our 1896 catalog, page 24. The use of this principle has been extended to a great variety of sizes and kinds of tin packages. The latest application is in the form of a 2-inch lever seal shown in the cut, and applied to square cans of various sizes. This has several very decided advantages over the old-style screw cap, which it is intended to replace. It is much larger than even the 1½-inch screw cap, giving a larger opening through which to fill and empty. In many cases no funnel is necessary, and such large fruit as peaches and apples could be put up in these cans through the opening. It is more readily opened and closed than a screw cap. The wire lever by which the cap is pried out is always there and always effective, while with a screw cap it is often



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necessary to apply a pair of large pincers or pipe-tongs to start the screw. The seal is low, occupying less room than most screws. It is also guaranteed to seal absolutely tight. There is a rubber gasket which forms the seal between the loose cap and the funnel part of the opening; and the cap, having four raised places around its rim, snaps firmly into place, and will stay till pried out by means of the lever. They have been thoroughly tested, and in rough handling the can will burst before the seal cap will be forced out.

We have a carload of cans in stock with this lever seal. The 5-gallon cans are put up one or two in a case, at the regular price—75c per box of 2 cans; 10 boxes, $6.50; 25 boxes at 60c; one in a box at 45c; 10 boxes, $4.00.

One-gallon square cans, 100 in a case, at $9.00 per 100. One box of ten 1-gal. cans, $1.20; 10 boxes, $11.

Half-gal. sq. cans, 100 in a box, $8.00 per 100: 12 in a box at $1.25; 10 boxes, $11.50.

One-quart sq. cans, 100 in a box at $6.50 per 100; 24 in a box at $1.85 per box: 10 boxes, $17.50.

Special prices on large quantities quoted on application. We are able to supply cans with this particular style of seal, from Medina only. They are specially adapted to the syrup trade, but are just as desirable for honey. Ohio sugar-makers' supplies furnished. Prices quoted to those interested.

CONVENTION NOTICES.

The Indiana Bee keepers' meeting will be held Jan. 7 and 8, 1897, in the Statehouse, at which time we expect and desire a full attendance of all bee-keepers of our State and those adjoining. Bring your wives, daughters, and sons, that they too may become interested in the practical management of bees for profit. E. S. POPE, Sec., Indianapolis.

KIND WORDS FROM OUR CUSTOMERS.

We are well satisfied with your supplies. We think the Weed foundation can't be beat.
Mt. Pleasant, Mich., Nov. 21. WALTER WING.

I am unusually pleased with Fred Anderson the bee-keeper, though he is in rather hard luck the last two chapters. R. P. JOHNSON
Smithville, Ga.

I have not received Sept. 1 GLEANINGS. Please send it to me. I am interested in Fred Anderson, so I can't miss one copy. MRS. D. ELLSWORTH.
Taylor, Ariz., Oct 1.

I am well pleased with GLEANINGS as an "advertising medium," as I have received responses from 12 different States. N. L. STEVENS.
Venice, N. Y., Oct. 8

I must say the money expended in advertisements in your paper has been the best investment I ever made. It has paid me over 150 per cent. You may make mention of it if you wish. DANIEL WURTH.
Falmouth, Ind., Oct. 12.

I like your paper very much, although I do not keep bees. I like it most of all for the points I get in gardening. I also like it for my young folks on account of its pure moral stories and sentiments generally; and, lastly, because it keeps out of politics. SHERMAN F. CURTIS.
Litchfield, Mich., Oct. 12.

Inclosed please find $1 00 for GLEANINGS. You see I don't want to stop the paper yet. It is full of interest from beginning to end. Don't send any premium, as I think I should send you one rather than you. Tell Mr. A. I. Root not to stop his Home talk. I like it very much, as it is full of Christian spirit. Will some of the Medina folks come to Montreal some time? I should be so glad to have a call at the college. H. DUPRET.
Montreal, Can., Oct. 31.

CALIFORNIA. Mountain bee ranch for sale. Good location; telephone connection with three railroad stations.
D. O. BAILIFF, Banning, Cal.

Yellowzones For Pain & Fever. An honest efficient remedy for all Fevers, Headaches, Colds, Grip, Rheumatism, Neuralgia, etc. A general-service remedy that will please you, *or money refunded.*

"They knock headaches clear to the horizon."
"It's a rare pleasure to find such a remedy."
"Too much can not be said in praise of them."
"I was suffering from Neuralgia, and found quick relief."
"I got more relief from Rheumatism in 12 hours after taking Yellowzones than from all else, tho' I was a skeptic."

1 Box, 25c; 6 Boxes, $1; Samples and Circulars, 5c.
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WHOLESALE DEALERS & COMMISSION MERCHANTS. Established 1875.
HONEY —AND— BEESWAX.
LIBERAL ADVANCES MADE ON CONSIGNMENTS.

Extracted Honey. Finest Quality.

Two 60-lb. cans, boxed, 7c per lb. One 60-lb. can, boxed, 8c per lb. Sample by mail, 10c. Pouder's Honey Jars and complete line of supplies. Catalog free.
WALTER S. POUDER,
162 Massachusetts Ave., Indianapolis, Ind.

Yell, O Yell, O'YELLOWZONES
YELLOWZONES for PAIN and FEVER.

Wants and Exchange Department.

Notices will be inserted under this head at one-half our usual rate. Advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 c. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange one Root's make section-machine (in fine order) for band-saw or offers.
THE GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To exchange all kinds of machinery (iron) for a saw-mill, and wood-working machinery. W. S. AMMON, Reading, Pa.

WANTED.—To exchange two fine St. Bernard dogs, St Bernard pups, shep. pups, pug pups, English bull pups; and any kind of a first-class dog you want I have. Write and tell me what you want and what you have to trade. W. S. BRILLHART.
Millwood, Knox Co., Ohio.

WANTED.—To exchange second-hand band instruments, bicycles, etc., for type-writer, comb honey, bee supplies. P. L. ANDERSON.
Miller, Nebr.

WANTED.—Canvasser to solicit orders for my permanent crayon portraits. Good wages assured. Write for particulars. W. A. BALDWIN,
Portrait Artist, Medina, Ohio.

WANTED.—To exchange 60-lb. cans in good order, at 25 cts. each, delivered, for comb or extracted honey at the market price.
B. WALKER, Evart, Mich.

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Weekly. Original, Progressive, Practical.

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By special arrangement with the publishers, we are enabled to offer the American Agriculturist in combination with GLEANINGS IN BEE CULTURE at the unparalleled low rate of $1.25 for both papers one year. The American Agriculturist is published in five editions. The N. E. Homestead, the Eastern, Middle, and Southern editions of American Agriculturist, and the Orange Judd Farmer. Each contains matter relating to its own locality, as well as the latest and most accurate market reports for the country in general. It has departments relating to all branches of farming, articles written by the most practical and successful farmers, supplemented with illustrations by able artists.

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Two Papers for the Price of One.

The **Farm Journal**, of Philadelphia, a monthly agricultural journal of 16 pages, sent **one Year Free** for one subscription to **Gleanings**, with $1.00, paid in advance, either new or renewal. In the case of a renewal, all arrears, if any, must be paid in addition to one year in advance.

The **FARM JOURNAL** is now in its 20th volume, and takes the lead among all the *low-priced* agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm, and reared at the plow-handles, and the contributors are practical men and women.

The regular price of this excellent journal is 50 cents a year, and it is well worth it; but by special contract with the **Farm Journal** we are enabled to make the above very liberal offers.

. . . . . **The A. I. Root Company, Medina, Ohio.**

A Bargain!

Only $1.50. We have made arrangements to furnish **THE OHIO FARMER**, of Cleveland, O., and GLEANINGS IN BEE CULTURE, both papers, for only $1.50.

The Ohio Farmer is well known as one of the very best, largest, and among the leading agricultural papers of America. A 20-page, 80-column paper EVERY WEEK in the year; employs THE VERY BEST WRITERS that money can procure; a strong, fearless defender of the agricultural interests of this country, and CLEAN in both reading and advertising columns. IT HELPS MAKE THE FARM PAY.

THE A. I. ROOT CO., Medina, O.

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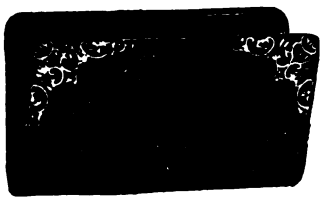

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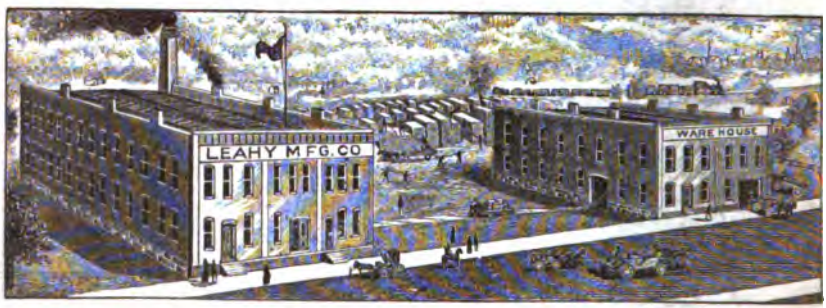

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